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ABSTRACT

Teachers participating in an experiment were asked to teach their control sections of junior high social studies classes as they had been planning to teach them anyway, but to adjust or enhance these plans so as to teach their experimental sections in ways that incorporated one or more of 24 motivational strategies featured in a training workshop. Implementation of these motivational guidelines (and thus differentiation of instruction between the two class sections) was variable but sufficient to produce significant improvement (from the first half to the second half of the semester) in student achievement. The treatment did not produce the expected pre-post improvement in student motivation questionnaire responses, however, and teachers who stressed strategies for capitalizing on students' existing intrinsic motivation got better motivational results than teachers who stressed strategies for motivating students to learn. These results suggest that student motivation to learn is even more different from (specifically, even more cognitive and less affective than) intrinsic motivation than previously suspected, so that systematic teacher implementation of strategies for motivating students to learn may produce improvements primarily in measures of student achievement rather than in measures of student motivation (especially if these are conventional measures that stress affective rather than the cognitive aspects of motivation). (Author)

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Jere Brophy
Mari Merrick

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Abstract

Teachers participating in an experiment were asked to teach their control sections of junior high social studies classes as they had been planning to teach them anyway, but to adjust or enhance these plans so as to teach their experimental sections in ways that incorporated one or more of 24 motivational strategies featured in a training workshop. Implementation of these motivational guidelines (and thus differentiation of instruction between the two class sections) was variable but sufficient to produce significant improvement (from the first half to the second half of the semester) in student achievement. The treatment did not produce the expected pre-post improvement in student motivation questionnaire responses, however, and teachers who stressed strategies for capitalizing on students' existing intrinsic motivation got better motivational results than teachers who stressed strategies for motivating students to learn. These results suggest that student motivation to learn is even more different from (specifically, even more cognitive and less affective than) intrinsic motivation than previously suspected, so that systematic teacher implementation of strategies for motivating students to learn may produce improvements primarily in measures of student achievement rather than in measures of student motivation (especially if these are conventional measures that stress the affective rather than the cognitive aspects of motivation).

MOTIVATING STUDENTS TO LEARN: AN EXPERIMENT IN JUNIOR HIGH SOCIAL STUDIES CLASSES

Jere Brophy and Mari Merrick[1]

In recent years, a major focus of the Classroom Strategy Research Project of the Institute for Research on Teaching (IRT) has been on conceptual analysis, literature review, and classroom observation on the topic of student motivation, and in particular on the topic of the teacher's role in stimulating student motivation to learn academic knowledge and skills. This work had its origins in earlier review, analysis, and synthesis papers covering theory and research on teacher praise (Brophy, 1981) and teacher expectations (Brophy, 1983b). The praise paper concluded that teacher praise has many intended and unintended functions besides reinforcement of particular student behaviors, that its strength as a reinforcer has been oversold and its potential for undesirable effects on students has been underappreciated, and that the quantity of teacher praise is less important than its quality. Synthesizing suggestions offered by behaviorists who view teacher praise as reinforcement and by attribution theorists who view teacher praise as an extrinsic pressure that can undermine students' intrinsic motivation by causing them to attribute their efforts to external causes (pressure to please the teacher) rather than to a desire to meet their internally determined needs, Brophy (1981) developed the guidelines for effective praise shown in Table 1. More generally, he concluded that, in addition to or instead of attempting to control student behavior through praise or other reinforcement, teachers should direct their motivational efforts toward developing their students' motivation to learn.

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[1]Jere Brophy is coordinator of the Classroom Strategy Research Project and professor in the Department of Teacher Education at Michigan State University. Mari Merrick was a research assistant with the project.

Guidelines for

Effective Praise
1. Is delivered contingently
2. Specifies the particulars of the accomplishment
3. Shows spontaneity, variety, and other signs of credibility; suggests clear attention to the student's accomplishment
4. Rewards attainment of specified performance criteria (which can include effort criteria, however)
5. Provides information to students about their competence or the value of their accomplishments
6. Orients students towards better appreciation of their own task-related behavior and thinking about problem solving
7. Uses students' own prior accomplishments as the context for describing present accomplishments
8. Is given in recognition of noteworthy effort or success at difficult (for *this* student) tasks
9. Attributes success to effort and ability, implying that similar successes can be expected in the future
10. Fosters endogenous attributions (students believe that they expend effort on the task because they enjoy the task and/or want to develop task-relevant skills)
11. Focuses students' attention on their own task-relevant behavior
12. Fosters appreciation of and desirable attributions about task-relevant behavior after the process is completed

Note: From "Teacher Praise: A Functional Analysis" by .
51, pp. 5-32. Copyright 1981 by American Educational Re
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Table 1

for Effective Praise

Ineffective Praise
1. Is delivered randomly or unsystematically
2. Is restricted to global positive reactions
3. Shows a bland uniformity, which suggests a conditioned response made with minimal attention
4. Rewards mere participation, without consideration of performance processes or outcomes
5. Provides no information at all or gives students information about their status
6. Orients students toward comparing themselves with others and thinking about competing
7. Uses the accomplishments of peers as the context for describing students' present accomplishments
8. Is given without regard to the effort expended or the meaning of the accomplishment (for *this* student)
9. Attributes success to ability alone or to external factors such as luck or easy task
10. Fosters exogenous attributions (students believe that they expend effort on the task for external reasons—to please the teacher, win a competition or reward, etc.)
11. Focuses students' attention on the teacher as an external authority figure who is manipulating them
12. Intrudes into the ongoing process, distracting attention from task-relevant behavior

y J. Brophy (1981), Review of Educational Research, Research Association, Washington, D.C. Reprinted

The Brophy (1983b) paper on teacher expectation effects focused primarily on teacher expectations concerning student achievement, because the overwhelming majority of teacher effects studies have focused on this topic. In assessing the current status of the field and identifying needed lines of research, however, Brophy (1983b) noted that the potential for self-fulfilling prophecy effects exists not only with teachers' expectations concerning student achievement, but also with teachers' expectations concerning a broad range of student attitudes, beliefs, expectations, attributions, and behaviors. Specifically in regard to student motivation, he hypothesized that the quality of student engagement in academic activities would be higher in classrooms where teachers communicated the expectation that students would find academic activities meaningful, enjoyable, and worthwhile than in classrooms where teachers communicated the expectation that students would find such activities pointless, boring, or unpleasant.

This hypothesis was tested in a naturalistic observation study conducted in six classrooms in grades four through six in an urban school serving a working class population of mixed race and ethnicity (Brophy, Rohrkemper, Rashid, & Goldberger, 1983). The six classrooms were observed 8-15 times each during reading and mathematics periods. Each reading or mathematics period involved one or more (usually two to four) different activities. Observers made verbatim records of what the teachers said about each activity when introducing it and then rated apparent student task engagement during the activity. It was expected that student engagement in activities would be highest following introductions by the teacher suggesting that the activities would be particularly meaningful, interesting, or important and that student engagement would be lowest following negative introductions suggesting that students would find the activity frustrating, boring, or otherwise unenjoyable.

The results provided only partial support for the hypotheses. As expected, engagement rates were lowest during activities that the teachers had introduced in ways judged likely to create negative expectations in the students. However, the highest engagement rates were not observed in activities that the teachers introduced in ways judged likely to create positive expectations in the students. Instead, the highest engagement rates were observed in activities that the teachers moved directly into without first providing a general descriptive introduction or motivational attempt. In general, the results provided little support for the hypothesis that positive activity introductions by teachers would have positive effects on student motivation (as indexed by apparent student engagement in the activities).

However, a closer analysis of the teachers' activity introductions observed in this study suggested that, perhaps instead of being adequately tested and rejected, the hypothesis had never been adequately tested at all (Brophy & Kher, 1986). During our observations, none of the six teachers ever mentioned that students could derive personal satifaction from developing their knowledge or skills. Furthermore, only about a third of the teachers' introductions to activities included comments judged likely to have positive effects on student motivation, and most of these were brief general predictions that students would enjoy the task or do well on it. Approximately 100 hours of classroom observation yielded only nine activity introductions that included substantive information about motivation to learn the content or skills that the task was designed to develop:

> These words are not elementary, high school, or college level words; these are living level words. You'll use them every day in life. If you plan to be a writer or enjoy reading, you'll need these words.
>
> Remember: The essential thing is to do them correctly, not to be the first to finish.

4

I think you will like this book. Someone picked it out for me, and it's really good.

This is a really strange story. It's written in the first person, so that the person talking is the one who wrote the story about his experience. It has some pretty interesting words in it. They are on the board.

The stories in this book are more interesting than the ones in the earlier level books. They are more challenging because the stories and vocabulary are more difficult. Reading improves with practice, just like basketball. If you never shoot baskets except when you are in the game, you are not going to be very good. Same with reading. You can't do without it.

Answer the comprehension questions with complete sentences. All these stories are very interesting. You'll enjoy them.

You girls should like this story because it is a feminist story. You boys will enjoy yours too. Your story is especially interesting. I want you to be sure to read it. It's a mystery, and you'll enjoy it.

Percent is very important. Banks use it for interest loans, and so on. So it is important that you pay attention.

You're going to need to know fractions for math next year. You will need fractions in the world to come.

Most of these remarks are minimal and essentially barren. They do not go into enough detail to be meaningful or memorable for most students, and many have a perfunctory quality suggesting that the teacher was going through the motions without much enthusiasm or conviction. Furthermore, whatever positive effect these remarks might have had was probably undercut by the facts that (a) most of the teachers' remarks about activities concerned procedural demands or evaluation of work quality or progress rather than description of the activity itself or what the students might expect to get out of it; and (b) many of the rest included remarks such as the following:

Today's lesson is nothing new if you've been here.

If you get done by 10 o'clock, you can go outside.

Your scores will tell me whether we need to stay with multiplication for another week. If you are talking, I will deduct 10 points from your scores.

This penmanship assignment means that sometimes in life you just can't do what you want to do. The next time you have to do something you don't want to do, just think, "Well, that's part of life."

Get your nose in the book, otherwise I'll give you a writing assignment.

You don't expect me to give you baby work every day, do you?

You've been working real hard today, so let's stop early.

You'll have to work real quietly, otherwise you'll have to do more assignments.

My talkers are going to get a third page to do during lunch.

We don't have a huge amount to do, but it will be time-consuming.

This test is to see who the really smart ones are.

In summary, the data suggest that these six teachers were not systematically taking advantage of opportunities to present classroom activities in ways likely to stimulate high-quality engagement and motivation to learn in their students. Data reported by other investigators point to similar conclusions. Anderson (1981), Blumenfeld, Hamilton, Bossert, Wessels, and Meece (1983), Corno and Mandinach (1983), Doyle (1983), and Rohrkemper and Bershon (1984) have all expressed concern about the quality of student engagement in academic activities observed in their research, suggesting that students tend to be more focused on meeting demands and completing assigned activities than on making sure that they understand what they are supposed to be learning. Furthermore, two other IRT projects have reported that low-quality student engagement occurs at least in part because of teacher failure to call student attention to the purposes of academic activities, the cognitive skills and

metacognitive processes that should be activated when engaged in those activities, or the applications of the knowledge or skills that the activities were designed to develop.

Anderson, Brubaker, Alleman-Brooks, and Duffy (1984) found that the first graders they studied seemed more concerned about completing assignments than about understanding the content they were supposed to be learning, and that questions about the purposes of assignments tended to yield only vague generalities ("It's just our work" or "We learn to read"), without reference to the specific content supposedly being learned or the skills being practiced. Analysis of the teachers' presentations of these assignments to the students indicated that teacher failure to call attention to the purposes and meanings of assignments was a major reason for the students' low quality of engagment in them. Most presentations included procedural directions or special hints ("Pay attention to the underlined words"), but only 5% explicitly described the purpose of the assignment in terms of the content being taught, and only 1.5% included explicit descriptions of the cognitive strategies to be used when doing the assignment.

Similarly, Duffy et al. (1986) have shown that poor readers are not very aware of the purposes of reading activities or of the skills they are supposed to be learning, let alone able to explain when and how to use those skills to read with better comprehension. Student awareness of when, how, and why to use reading comprehension skills increases significantly when teachers are trained to become more explicit in articulating the cognitive processing involved in reading for meaning. Such teacher training is time-consuming and intensive, however, involving a great deal of modeling and coaching in addition to provision of information.

Taken together, the conceptual and empirical work reviewed so far suggested four conclusions that contributed to the development of the experimental study reported in the present paper: (a) Both common sense and some theory and research suggest that teachers should be able to shape student motivation through modeling, communication of expectations, and other socialization of the attitudes, beliefs, expectations, attributions, and behaviors of their students; (b) however, it appears that most teachers (or at least most elementary grade teachers--the research reported above was all done at the elementary level) do not systematically include such socialization in their everyday instruction of their students; (c) in fact, the frequency and quality of such socialization appear to be so low as to limit the value of further naturalistic observation research on the topic; (d) however, if teachers could be induced to provide such socialization systematically, they might significantly improve the quality of their students' task engagement. In short, the next logical step in our program of research appeared to be an experimental study.

The Concept of Student Motivation to Learn

The motivational strategies emphasized when training the teachers for the experimental study described in the present paper are associated with the concept of student motivation to learn as described by Brophy (1986, 1987). The definition of this concept and several conceptual distinctions associated with it grew out of an earlier critique of theory and research on motivation as they are usually presented to teachers (Brophy, 1983a). This critique suggested that the primary reason why most teachers do not appear to be doing a very effective job of motivating their students to learn is that their teacher education programs typically do not include a coherent presentation of concepts and strategies needed to prepare them to do so, and furthermore, that some of

the concepts and strategies that are taught are irrelevant or even counterproductive.

Much of the advice given to teachers about motivation stems from either of two contradictory yet frequently propounded views that are both incorrect, at least in their extreme form. The first view is that learning should be fun, so that when classroom motivation problems appear it is because the teacher has somehow converted an inherently enjoyable activity into drudgery. This view contains a grain of truth in that it does seem reasonable to expect students to find academic activities meaningful and worthwhile, but it does not seem reasonable to expect them typically to find such activities to be "fun" in the same sense that recreational games and pastimes are fun. The other extreme view is that school activities are necessarily boring, unrewarding, and even aversive, so that teachers must rely on extrinsic rewards and punishments in order to force students to engage in these unpleasant tasks. There is a grain of truth in this position as well because students are required to attend school and to put forth effort in working on tasks assigned to them by someone else, under conditions in which much of their work is public knowledge (thus carrying the danger of embarrassment before the peer group) and subject to monitoring and grading by the teacher. Given these conditions, intrinsic motivation for engagement in academic activities is minimized for many if not most students, so that offering extrinsic incentives for good performance is one way to stimulate effort and reward success. Thus, extrinsic incentives have their place in the classroom. However, they should be one among several sets of factors influencing student motivation, not the only set. With proper instruction and socialization from teachers, students should learn to find academic activities meaningful and worthwhile for several reasons including intrinsic

motivation and self-actualization, not just because successful performance will earn extrinsic rewards.

In short, the philosophical position underlying the programmatic line of research of which the present study is a part begins with the assumption that the primary objective of teachers' motivational efforts should not be merely to control student behavior or even to make academic activities enjoyable for students, but instead to motivate students to want to learn the knowledge and skills taught in the curriculum; that is, it is assumed that teachers should concentrate on stimulating student motivation to learn, which is defined as a student tendency to find academic activities meaningful and worthwhile, and to try to get the intended academic benefits from them.

Motivation to learn can be construed both as a general trait and as a situation-specific state. As a general trait, motivation to learn refers to an enduring disposition to strive for knowledge and mastery in learning situations. This trait is most characteristic of individuals who find learning intrinsically rewarding--who value it as a worthwhile and satisfying activity and enjoy expanding their knowledge of information, increasing their understanding of concepts and processes, or mastering skills. However, similar levels of effort and persistence in learning situations may also be seen in individuals who are motivated by a sense of duty (if you are going to have to put in the time on something anyway, you may as well do your best and get the most from the experience).

In specific situations, a state of motivation to learn exists when student engagement in an academic activity is guided by the goal or intention of acquiring the knowledge or mastering the skill that the activity is designed to teach. In classrooms, students reveal motivation to learn when they try to master the

information, concepts, or skills being taught as they attend to lessons, read text, or work on assignments. Whether or not they find a particular activity interesting or enjoyable (that is, whether or not they are intrinsically motivated to engage in the activity), students who are motivated to learn will try to get the intended benefits from the activity by striving to make sure that they understand and will remember what they are supposed to be learning. In contrast, students who are not motivated to learn will do only as much as they believe they will need to do in order to meet performance standards that will ensure access to reward or avoidance of punishment.

Implied in this definition of student motivation to learn is a basic distinction between learning and performance: Learning refers to the information-processing, sense-making, and comprehension or mastery advances that occur during the acquisition of knowledge or skill; performance refers to the demonstration of such knowledge or skill after it has been acquired. Many approaches to the study of the relationships between motivation and behavior, especially approaches focused on the concept of reinforcement, ignore this distinction or deal only with performance. Such approaches provide only a limited basis for generating strategies for stimulating student motivation to learn because they do not take adequate account of the heavily cognitive nature of classroom learning. With a few exceptions, such as penmanship or zoology dissection skills, school learning is primarily covert and conceptual rather than overt and behavioral. Thus, the term "motivation to learn" refers primarily to the motivation underlying those covert processes that occur during learning rather than to the motivation that drives later performance. Thus, if they are to motivate their students to learn, teachers will need strategies that apply not only to performance (work on tests or assignments), but also to the

information-processing activities (attending to lessons, reading for understanding, comprehending instruction, putting things into one's own words) that are involved in learning content or skills in the first place. Such motivational strategies would focus on stimulating students to use thoughtful and effective information-processing and skill-building strategies when they are learning. This is distinctly different from merely offering them incentives for good performance later.

A related implication is that the concept of student motivation to learn emphasizes the cognitive aspects of student motivation, not just the affective (emotional) aspects. Thus, the emphasis is not so much on whether students enjoy an activity as on whether they take it seriously and try to get the intended benefits from it. Similarly, the emphasis is not on the intensity of physical effort devoted to the activity or the time spent on it, but on the quality of students' cognitive engagement in the activity--the degree to which they approach the activity purposefully and respond to it thoughtfully. Being motivated to learn implies such high-quality engagement in the activity, not mere enjoyment of the activity.

Therefore, research on intrinsic motivation, where the emphasis is on identifying the properties of activities that make them attractive and thus likely to be engaged in voluntarily during free choice or recreation situations, is also of limited usefulness as a basis for identifying strategies for motivating students to learn in the classroom. Teachers cannot operate like recreation program directors who concentrate on finding out what their clients like to do and providing them with opportunities to do it. Whatever choices of activity that teachers offer their students need to be consistent with the primary goal of seeing that the students master the prescribed curriculum.

Furthermore, the objective of most activities will be mastery rather than mere exposure, so that the emphasis will be on learning rather than enjoyment. Thus, the motivational problem facing teachers is much like the motivational problem facing managers in the workplace: finding ways to stimulate the students to voluntarily invest themselves and work conscientiously at tasks that they will be required to perform at some level of engagement in any case.

Expectancy x Value Theory

Most approaches to motivation, including the present one, fit within general social learning theory and in particular with expectancy x value theory (Feather, 1982). This theory posits that the effort that people will be willing to expend on a task will be a product of (a) the degree to which they expect to be able to perform the task successfully if they apply themselves and (b) the degree to which they value participation in the task itself or the benefits or rewards that successful task completion will bring to them. Effort investment is viewed as the product rather than the sum of the expectancy and value factors because it is assumed that no effort at all will be invested in a task if either factor is missing entirely, no matter how much of the other factor may be present. People do not invest effort in tasks that do not lead to valued outcomes even if they know that they can perform the tasks successfully, and they do not invest effort on even highly valued tasks if they are convinced that they cannot succeed on these tasks no matter how hard they try.

Expectancy x value theory is the same general orientation to motivation shared by such approaches as those based on the concepts of achievement motivation (Dweck & Elliott, 1983), efficacy perceptions (Bandura, 1982; Bandura & Schunk, 1981), and casual attributions (Weiner, 1984). However, these approaches have been concerned mostly with the expectancy term of the expectancy x value

formulation, whereas the present approach is focused on the value term. Thus, in focusing on student motivation to learn, we are not as much concerned with students' desire to achieve in the sense of competing with standards of excellence as with their desire to learn content and master skills. Similarly, we are not as much concerned with their perceptions of efficacy (focused on the self) as with their perceptions of the content to be learned and their metacognitive awareness of their methods for responding to tasks. Finally, we are not as much concerned with students' attributions about the causes of success or failure as with their attributions about their reasons for participating in academic activities in the first place. Thus, while recognizing the value of expectancy-focused approaches designed to develop students' sense of internal locus of control, sense of efficacy or competence, personal causation (origin vs. pawn) perceptions, or perceptions of covariation between effort and outcome, the present value-focused approach concentrates on developing students' motivation to learn the concepts or skills that an academic task is designed to teach.

Identification of Strategies for Teachers

As part of a larger effort designed to develop a systematic treatment of the topic of student motivation organized in terms of goals and strategies for teachers (Brophy, 1986; Good & Brophy, 1987) a broad range of theoretical and empirical research on motivation was reviewed and synthesized. The search included the ERIC system, Dissertation Abstracts International, Psychological Abstracts, and various books and articles in education and in developmental, social, personality, and industrial psychology. The objective of the review has been to extract from this literature a basic set of concepts and principles that enjoy clear empirical support or at least consensual validation by leaders in the field, and within this set, to identify a subset of concepts

and principles that appear relevant to the needs of teachers faced with the problem of motivating students in their classrooms.

Consequently, the most useful sources were those concerned specifically with motivation in the classroom, especially those that (a) suggested strategies for building student motivation (not just using it as a predictor of individual differences in performance), (b) took into account task value (not just performance expectations), and (c) addressed the problem of motivating students' learning (not just controlling their later performance). Especially useful sources were general works on motivation intended for teachers (Kolesnik, 1978; Wlodkowski, 1978), works on expectation effects and socialization of students (Brophy, 1983b; Good & Brophy, 1986, 1987; Dusek, 1985), works on intrinsic motivation and related topics (Deci & Ryan, 1985; Lepper & Greene, 1978; Maehr, 1984; Malone & Lepper, in press), a chapter by Keller (1983) on including motivation in instructional design, works on stimulating active information-processing and generative learning strategies in students (Good & Brophy, 1986; McCombs, 1984; Weinstein & Mayer 1986), and various articles in industrial psychology dealing with factors that affect workers' attitudes toward their jobs.

When relevant sources were identified, the information they offered and its implications for teacher socialization of student motivation were summarized and expressed in the form of principles or strategies to be recommended to teachers. Ideas from various sources that differed in terminology but advocated essentially the same principle or strategy were combined in order to eliminate redundancy and identify a comprehensive, yet manageably small, set of basic principles. These principles, along with rationales explaining how and why they should work and elaborations or qualifications that need to be

kept in mind when attempting to apply them in the classroom, are being organized into a master list that will become the basis for a book on the topic.

The master list of motivational strategies has undergone several revisions involving addition of new strategies and changes in the conceptualization and organization schemes used for dividing the strategies into subsets. The most recent version of this list is outlined in Table 2. It lists four essential preconditions that must be in effect if other motivational strategies are to succeed, then lists four strategies for motivating by maintaining students' expectations that they can achieve success at academic tasks if they put forth reasonable effort, then lists 25 strategies for motivating students by stimulating them to value engagement in academic activities or the opportunity to enjoy the benefits or rewards that come with successful completion of such activities. These 25 value-focused strategies are subdivided into 3 strategies for motivating by supplying extrinsic incentives, 10 strategies for motivating by capitalizing on students' intrinsic motivation by providing opportunities for them to do things that they enjoy doing, and 12 strategies for stimulating student motivation to learn the content or skills that tasks are designed to develop.

The strategies on which the teachers were trained for our experiment were drawn from an earlier version of this master list. Labeled and organized as they were presented to the teachers in the Teacher's Manual (see Appendix A), these strategies are shown in Table 3. Although there is one fewer strategy (the strategy of projecting intensity had not yet been added to the list) and the remaining strategies are sometimes ordered or labeled differently, the strategies for inducing motivation to learn listed in Section A of Table 3 correspond closely to the strategies for stimulating student motivation to

Tab

List of Motivational Pre

A. Essential Preconditions.

1. Supportive environment
2. Appropriate level of challenge/ difficulty
3. Meaningful learning objectives
4. Moderation/optimal use

B. Motivating by Maintaining Success Expectations

5. Program for success
6. Teach goal setting, performance appraisal, and self-reinforcement
7. Help students to recognize linkages between effort and outcome
8. Provide remedial socialization

C. Motivating by Supplying Extrinsic Incentives

9. Offer rewards for good (or improved) performance
10. Structure appropriate competition
11. Call attention to the instrumental value of academic activities

D. Motivating by Capitalizing on Students' Existing Intrinsic Motivation

12. Adapt tasks to students' interests
13. Include novelty/variety elements
14. Allow opportunities to make choices or autonomous decisions
15. Provide opportunities for students to respond actively

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16. Provide immediate feedback to student responses
17. Allow students to create finished products
18. Include fantasy or simulation elements
19. Incoporate game-like features
20. Include higher level objectives and divergent questions
21. Provide opportunities to interact with peers

E. Strategies for Stimulating Student Motivation to Learn

22. Model interest in learning and motivation to learn
23. Communicate desirable expectations and attributions about students' motivation to learn
24. Minimize students' performance anxiety during learning activities
25. Project intensity
26. Project enthusiasm
27. Induce task interest or appreciation
28. Induce curiosity or suspense
29. Induce dissonance or cognitive conflict
30. Make abstract content more personal, concrete, or familiar
31. Induce students to generate their own motivation to learn
32. State learning objectives and provide advance organizers
33. Model task-related thinking and problem solving

List of Motivational Strategies Use

Assumptions and Preconditions

1. Supportive environment
2. Appropriate level of challenge/difficulty
3. Meaningful learning objectives
4. Moderation/optimal use

A. Strategies for Inducing Motivation to Learn

1. General modeling
2. Communicate desirable expectations and attributions
3. Structure activities as learning experiences, not tests
4. Teacher enthusiasm
5. Induce task interest or appreciation
6. Induce curiosity or suspense
7. Make abstract content more personal, concrete, or familiar
8. Induce dissonance or cognitive conflict
9. Induce the students to generate their own motivation to learn
10. State learning objectives and provide advance organizers
11. Provide informative feedback
12. Model task related thinking and problem solving

Table 3

sed as the Basis for Teacher Training in the Experiment

13. Induce metacognitive awareness of learning efforts

    a. actively preparing to learn

    b. committing material to memory

    c. encoding or elaborating on the information presented

    d. organizing and structuring the content

    e. monitoring comprehension

    f. maintaining appropriate affect

B. Task Design and Selection Strategies

14. Adapt tasks to students' interests

15. Choice

16. Novelty/variety

17. Autonomy

18. Activity/manipulation opportunities

19. Feedback features

20. Creation of finished products

21. Fantasy/simulation features

22. Game-like features

23. Higher level objectives/divergent questions

24. Opportunities to interact with peers

learn listed in Section E of Table 2, and the strategies labeled "task design and selection strategies" shown in Section B of Table 3 correspond closely to the strategies for capitalizing on students' existing intrinsic motivation shown in Section D of Table 2. Thus, teacher training for the experiment focused on these two sets of strategies and not on strategies for motivating by maintaining success expectations or strategies for motivating by supplying extrinsic incentives (the strategies shown in Sections B and C of Table 2). In particular, training of teachers for the experiment stressed the strategies for motivating students to learn, especially Strategies A4 through A10 in Table 3.

Method

General plans for the experiment called for (a) developing a modest program for training teachers in motivational strategies designed to improve the quality of students' engagement in classroom activities by increasing the degree to which they experienced such activities as meaningful, enjoyable, or worthwhile; (b) monitoring the teachers' implementation of training guidelines in their classrooms; and (c) assessing effects on student motivation and achievement.

Teacher training was designed with two somewhat contradictory goals in mind. On one hand, we wanted the training to be lengthy and intensive enough to be effective. On the other hand, we wanted it to be as brief and simple as possible, so as to maximize its "exportability" for use elsewhere. The fact that teachers typically do not implement these strategies consistently on their own suggested that intensive training might be needed, yet most of the strategies (especially those that we wished to emphasize in the training) had face validity with teachers and appeared to be relatively easy to understand

and implement. Thus, there did not appear to be a need for the intensive training, coaching, and technical assistance that had proven necessary in other IRT projects designed to make teachers more explicit in instructing their students in reading comprehension strategies (Duffy et al., 1986), to follow conceptual change teaching methods in science classes (Anderson & Smith, 1987), or to introduce wholesale changes in their handling of general mathematics classes (Madsen-Nason & Lanier, 1986). Consequently, we prepared a 22-page manual (see Appendix A) and met with the teachers for six to ten hours in two or three workshop sessions prior to their participation in the experiment, but we did not prepare videotapes or other multimedia training tools, attempt to coach the teachers in their classrooms, or continue to schedule workshop meetings after the teachers began implementing the guidelines (and thus conducting the experiment) in their classrooms.

Ideally, this experiment would have been conducted under conditions in which teachers working toward identical instructional objectives for identical amounts of time, using the same curriculum materials with comparable students, were assigned randomly to experimental and control groups, and changes in student motivation and achievement were assessed with identical instruments. It might have been possible for us to use such an experimental design if we had been willing to confine the scope of the study to a brief (one- or two-week) unit of instruction, especially if we had built such an experimental unit around content that is commonly taught to students at a given grade level anyway. However, we were not especially interested in showing that teachers working with a unit designed to be ideal could get better results than teachers working with a less ideal version of the same unit, because such a result would be expected simply of the basis of Hawthorne effects, novelty effects, and

related phenomena. Instead, we wanted to approximate naturalistic conditions more closely by focusing the training on general motivational principles that teachers could adapt to whatever curricular objectives and materials they were using (i.e., we wanted to emphasize instructional planning rather than curriculum design) and by continuing the experiment over a sufficient length of time (a school term or semester) to ensure that any effects observed would be genuine and lasting ones rather than temporary novelty effects. It proved to be impossible to meet these conditions and still conduct an ideal experiment.

Comparability across teachers in time allocated to subject matter could be controlled by working at the secondary level where classes are taught for fixed time periods (the elementary grade levels had to be avoided because elementary teachers vary considerably in the amounts of time that they allocate for instruction in different subject matter areas). Identification of even ostensibly identical courses taught to large numbers of students proved to be more difficult, however. Tracking systems produced a proliferation of courses in any given subject matter area in high schools and even to some degree in junior high and middle schools. Discussions with the largest nearby school system (that serves a small city that boasts three large high schools and four large junior highs) revealed that seventh and eighth grade social studies courses were just about the only courses in the academic curriculum (language arts, mathematics, science, and social studies) that were taken by all students and taught using the same curriculum objectives and materials. Consequently, we focused our plans on junior high social studies classes.

Originally, we had hoped to find about 30 teachers (15 to be assigned to the experimental group and 15 to a control group, using a stratified random sampling method) who all were teaching essentially the same course at the same

grade level (either seventh or eighth), so that achievement could be measured using the same test. This was not possible. In the first place, because the district included only four junior high schools and because most teachers who teach social studies at all teach several sections of social studies, there were not 30 social studies teachers working at either the seventh- or the eighth-grade level (or even in the two grades combined, for that matter) in the entire district. Thus, even if we recruited every available teacher, we would not have had enough to allow us to use the ideal research design.

Second, recruiting teachers for this study proved to be difficult. Secondary teachers tend to be especially pressed for time (many of them have second jobs elsewhere or put in additional time at the school working as coaches or sponsors of extracurricular activities), and involvement in the study would require a significant commitment of time and energy extending over the first half of the school year. Third, discussions with teachers made it clear that, despite a common course title and ostensibly common curriculum objectives and materials, there was considerable variance in what was actually done in these junior high social studies classes. Teachers were not expected to follow a common syllabus, nor was a common achievement test used. Inquiries in other school districts yielded similar stories, making it clear that it would not be possible to identify large numbers of teachers following the same syllabus in teaching the same course in classes at all of the schools in a school district, and thus it would not be possible to use the ideal research design.

Instead, we used a design calling for each teacher to act as his or her own control by teaching one section (the control section) of a social studies course in whatever way he or she had been planning to teach it, but adjusting these plans in order to inject extra or special motivational elements into the

instruction of another section (the experimental section) of that same course. This design required only half as many teachers, and it required matching of curriculum objectives, materials, and achievement measures only across each respective pair of class sections rather than across the sample of classes as a whole. Furthermore, since each pair of class sections would have the same teacher and would be composed of students in the same grade level at the same school, this design allowed control of most of the factors other than student motivation strategies that might affect student motivation and achievement. However, these advantages of the alternative research design were counterbalanced by the fact that it placed additional demands on the teachers by requiring them to teach the control section one way but teach the experimental section a different way.

The complexities facing the teachers could have been minimized by assigning class sections to treatments so that the teachers always taught their control class before teaching their experimental class. This would have underscored the fact that the experiment called for augmenting or enriching the plans for the experimental sections (compared to what had been planned for control sections), because the teachers would first teach their control section in the usual way and then teach the experimental section in a way that included extra or special elements designed to augment student motivation. Unfortunately, this procedure would have confounded effects produced by the treatment with potential practice effects associated with the order in which class sections were taught (e.g., when teachers teach the same material two or more times per day, they get the opportunity to become more smooth and efficient in their presentations, to correct imperfections in their plans, and to use examples or content elaborations suggested by student questions or comments in earlier

class sections, and thus may be able to teach the material more effectively with each succeeding practice opportunity). To avoid such confounding, it was necessary to assign class sections to treatments randomly, which meant that some teachers had to teach their experimental section before teaching their control section. Even though it was made very clear that the experiment involved augmenting plans for experimental sections rather than taking something away from the control sections, teachers who taught their experimental section before they taught their control section suffered from the unjustified yet compelling and unpleasant perception that participation in the experiment involved reducing the quality of the instruction that their control students were getting rather than increasing the quality of the instruction that their experimental students were getting. This appeared to be one reason why the teachers' instruction during the experiment showed less differentiation between class sections than we had hoped to see.

Sample

Original plans called for recruiting 15 seventh-grade social studies teachers from the small city school district described previously. However, the smaller-than-anticipated pool of such teachers available and the difficulties experienced in recruiting teachers (only about 35% of the teachers contacted agreed to participate) made it clear that the scope of the study would have to be widened to include additional school districts, grade levels, or subject matter areas. Expansion into other subject matter areas was rejected because pilot work had been conducted in social studies classes and the materials and examples assembled for the teacher training workshops had been gathered with social studies instruction in mind. However, we did broaden our sample to

include eighth-grade as well as seventh-grade social studies teachers and to include teachers working in nearby smaller districts surrounding the central urban district where pilot work had been done and where we had been focusing our recruiting efforts. Even with these adjustments we were unable to recruit 15 teachers in time to allow them to begin to participate in the fall-winter semester. However, we did recruit 11 teachers who met our requirements (they were teaching at least two sections of the same seventh- or eighth-grade social studies course to comparable classes of students) and were willing to participate. These included eight teachers (six male, two female) working at three of the junior high schools in the urban district and three teachers (two male, one female) working at junior high schools in outlying districts serving small town and rural populations.

Participation in the experiment required the teachers to (a) attend workshop meetings; (b) plan and implement strategies for stimulating student motivation to be used in the experimental section that were different from or additional to the normal instruction planned for the control section; (c) supply a brief description of these plans approximately one week in advance; (d) be observed twice per week throughout the semester; (e) schedule time near the beginning of the semester and again near the end of the semester for administration of the student motivation questionnaire; (f) supply attendance data, tardiness data, and students' scores from tests and assignments; and (g) respond to the questions in a debriefing interview scheduled subsequent to completion of data collection. In partial compense for the out-of-class time spent responding to some of these requirements, the teachers were paid an honorarium of $400 each. In addition, the teachers received the Teacher's Manual and the other materials used in workshops, a report of the findings of

the study, and if they wished, an opportunity to meet with Dr. Brophy after data collection was completed to get feedback based on his reading of the reports of observations done in their classrooms.

The teachers taught geography, ancient history, or government, depending on their grade level and school district. The teachers were interviewed to determine which of their social studies sections (if they taught more than two) were most similar in terms of number, achievement levels, and status characteristics of the students. These two class sections for each teacher were then designated as the sections to participate in the experiment, and one was randomly designated as the experimental section and one as the control section. The result of these random designations was that seven teachers taught the control section earlier in the day than the experimental section, and the other four teachers taught the experimental section first.

Original plans called for teachers to be recruited and trained prior to the beginning of the school year in the fall, and for data collection to begin as soon as school started. However, only five teachers were recruited early enough to be trained prior to the beginning of the school year, and data collection did not begin immediately even in these teachers' classes because the first two weeks of school were interrupted by the Labor Day holiday, state-mandated achievement progress tests were administered during these weeks in the seventh-grade classrooms (most of the teachers worked at the seventh-grade level), and frequent reassignment of students occurred during these early days so that it usually was not until the third week that class rosters were stabilized. Consequently, even though five of the teachers had been trained prior to the beginning of the school year, data collection did not begin in their classrooms until the third week of school. Two other teachers were trained immediately after the beginning of the school year, so that data collection

began in their classrooms during the fourth week of school. Finally, another four teachers were trained during the third or fourth week of school and data collection began during the fourth or fifth week (the numbers differ because the different school systems began on different dates).

Training Workshops

The five teachers who were trained during the summer before the school year began met for three workshop sessions totaling about 10 hours. This proved to be more time than was needed to complete the planned activities, so the other two workshops required only two sessions totaling about 6 hours. Teachers were given a packet of materials that included background reading (reports of research on motivation in classrooms, especially in social studies classrooms, and information about methods for preparing students to read and study with metacognitive awareness of their goals and strategies), but most of the workshop time was spent working through the Teacher's Manual with the teachers. In particular, Dr. Brophy emphasized the concept of motivation to learn, stressed that the goal was to stimulate students to attempt to get the intended knowledge and skill benefits from academic activities rather than merely to enjoy them, and noted that, although all 24 strategies were recommended, the teachers were primarily being asked to augment their regular activities by using the strategies in Section A (especially strategies A4 through A10) rather than to replace their typical activities with special activities (which is required to implement most of the strategies in Section B). In short, the experiment called for motivating students to attempt to master the curriculum, not for replacing the curriculum with fun and games.

To prepare for participation in the experiment, the teachers were asked to plan instruction in their control class in the usual way (or to implement existing plans), but then to expand or adapt those plans for the experimental class to include motivational "extras" reflecting incorporation of one or more of the strategies in the manual. The teachers were urged to plan at least one extra or different thing for the experimental class each day, and ideally to plan at least one extra or different element for each activity or task included in each day's plans.

The teachers were instructed to record their plans on the Teacher Planning Record forms developed for use in this study (examples are given on pages 21 and 22 of the Teacher's Manual). Instructions called for teachers to briefly indicate what was planned for the control section on the left side of the form, and then use the right side of the form to explain how these plans would be elaborated or changed for the experimental section. In describing the motivational extras planned for the experimental section, the teachers were asked to indicate the numbers (1-24) of the strategies that guided development of these special plans. The teachers were given supplies of Teacher Planning Record forms that included attached carbons to allow them to make copies for us automatically as they made their own copies of their plans. Thus, one set of data indicating the degree and nature of teacher implementation of the experimental guidelines came from copies of the teachers' plans for differentiating their instruction of the two class sections.

Classroom Observations

Once data collection began, the teachers were visited on two days of each week and observed in both their control and their experimental sections. The

observers' primary task was to record detailed descriptions of teacher behavior and teacher-student interaction in these classes, noting the similarities and especially the differences between sections. Note taking focused on the degree to which and the way in which each teacher implemented the guidelines in the Teacher's Manual, and thus the degree and nature of differentation made between the two class sections.

Observational visits were arranged in advance with the teachers and were scheduled on days devoted to ordinary instruction (i.e., not testing days, field trip days, etc.). Observers seated themselves to the side or rear of the classroom and remained as inconspicuous as possible, concentrating on taking notes and avoiding interaction with the teacher or the students. The teachers were asked to introduce the observers to the students as individuals interested in learning about social studies instruction and to explain that the observers were there to take notes rather than to teach or interact with the students.

Observers recorded descriptive notes while visiting classes and comparative notes afterward. The descriptive notes included verbatim recording of the introduction statements made by teachers when beginning each activity, followed by description of teacher behavior and student response to the activity. Teacher behavior notes focused on implementation of strategies in the manual. When the teacher was presenting information, the observer would be alert for elaborations on or departures from the text, especially examples or anecdotes designed to make the material more concrete, meaningful, visualizable, or personally interesting to the students. When the teacher was asking questions, the observer would record as many of these questions verbatim as possible, especially higher level or divergent questions. If the teacher used hand-outs

or props, the observer would describe these and how they were used. During seatwork times, the observer would describe the teacher's behavior and record as many verbatim quotes as possible. In general, the descriptive notes were intended to characterize each activity implemented in the class that day and record what the teacher said and did in the process of implementing the activity.

In addition, the descriptive notes included three sets of information about students. First, the observer recorded verbatim any unsolicited questions or comments that students addressed to the teacher. Particular interest here was on the degree to which student questions or comments indicated interest in learning the content rather than merely in clarifying procedures and requirements. Second, the observers recorded anything that seemed pertinent in the students' responses to the teachers' questions (unusually insightful, excited, extended, or otherwise desirable responses indicating serious interest in the content, as well as complaints that the material was boring or too difficult). Finally, observers made off-task counts 5 minutes after activities began and every 10 minutes thereafter (until the activity ended). Here, the observers recorded the number of students in the room at the time and the number of these students who appeared to be clearly off task (not attending to a lesson or working on an assignment). Only students who were clearly off task (socializing, fooling around, grooming themselves, playing with toys) were counted as off task; observers were instructed to give the benefit of the doubt whenever they were not sure.

Unlike the descriptive notes that were written (at least in initial draft) during classroom visits, comparative notes were written after both the control section and the experimental section had been observed on a given day. Comparative notes focused on the similarities and especially the differences

between the two class sections. The comparative notes began with mention of any general differences between the two sections that cut across all of the activities observed that day. These might include general differences in the teacher's or the students' mood, energy levels, or ability to concentrate, as well as situational factors that affected one section but not the other (P.A. announcements, outside noise, distraction from exciting or disturbing events that occurred right before the class, etc.).

The comparative notes then included descriptions of each activity observed in each class section. Where essentially the same activities were observed, the comparative notes focused on the difference in teacher behavior and student response. If the activity involved teacher lecturing, were there differences in the introduction to the lecture or in subsequent pacing, enthusiasm, use of props, examples, anecdotes, or elaboration of detail? If the activity involved recitation or discussion, were there differences in the nature of the questions asked, in student response, or in teacher feedback to student answers? If the activity was a task or assignment, were there differences in the way it was introduced, in the teacher's behavior once it began (staying at desk vs. circulating, frequently initiating vs. mostly responding to students who sought help), in students' apparent response to the activity (interest or enthusiasm, clarity about what to do or how to do it), or in the teacher's reactions to individual students (praising, criticizing, providing encouragement or help)?

In particular, the observers were instructed to note which of the differences observed were planned motivational "extras." If the teacher replaced one or more control group activities with an entirely different activity prepared especially for use with the experimental group, observers were instructed to compare the activities in terms of content covered, nature of objectives

and responses demanded of the students, expectations created by the teacher when introducing the activities, teacher enthusiasm, and student response. Was the special activity intended to teach social studies content or merely to provide an enjoyable interlude for the students?

In addition to describing in their own words the similarities and differences between the two class sections observed on a given day, the observers made ratings on the following three rating scales for each of the activities they had observed:

A. Teacher's planned differences. To what degree did the teacher plan and implement different or extra elements into the activity in the experimental section compared to the control section? Given what actually occurred in the two class sections, and ignoring differences introduced by the students themselves, to what degree did the teacher teach the two sections differently?

1. No difference. The activities were the same and the teacher taught them in essentially the same way.

2. Minor difference. The activities were the same and were taught similarly, but the teacher did introduce one or more very minor differences (such as a brief sentence in the task introduction stating the objective or commenting briefly on the content of the lesson).

3. Major difference. The activities were the same, but the teacher introduced at least one major difference into the experimental section (use of a special prop, addition of significant content, concerted effort to induce curiosity or interest when introducing the task, noteworthy differences in degree to which teacher goes beyond the text to make it more concrete, meaningful, etc.).

4. Different activities. The teacher planned a completely different activity for the experimental group to take the place of the activity used with the control group.

B. Students' affective response. Compare the two sections in terms of student interest and active involvement. Did the students seem to find the activity interesting, enjoyable, or worthwhile, or were they bored, apathetic, or resistant?

1. The control section responded much more positively than the experimental section.

2. The control section responded slightly more positively than the experimental section.

3. There was no significant difference between sections.

4. The experimental section responded slightly more positively than the control section.

5. The experimental section responded much more positively than the control section.

C. Overall value of the activity. Compare the two sections in terms of the degree to which the activity was a useful and effective social studies activity. Consider both its curriculum objectives and content and its apparent effect on students. Regardless of whether or not the students found the activity enjoyable or exciting, was it a meaningful and worthwhile exposure to social studies concepts or information? Are the students like to remember and think about what they learned today?

1. The control section's activity was much more effective.

2. The control section's activity was slightly more effective.

3. There was no significant difference.

4. The experimental section's activity was slightly more effective.

5. The experimental section's activity was much more effective.

Classroom observations were done by college graduates with backgrounds in psychology or education. Most were graduate students in education, although only a few had had teaching experience. There were eight observers. Three of these each covered two teachers each week and the rest covered one teacher each.

Observers were trained through several hours of workshop meetings followed by practice observations in the classrooms. The workshop meetings covered the instructions given to the teachers, the nature of the data to be collected,

and the specifics involved in writing and finalizing descriptive and comparative notes, counting and recording the numbers of students who were off task at the appropriate times during activities, and using Scales A, B, and C (described above). Training in note taking focused on getting the observers to concentrate their attention and reporting on issues relevant to motivating students to learn (rather than on less relevant issues such as classroom management routines or the content of social interactions among students).

Observers were fully informed about the design and procedures of the study, including knowledge of which were experimental sections and which were control sections, because their observation reports and ratings were conceived primarily as implementation data rather than outcome data. Along with the teachers' recorded plans, the observers' descriptions and ratings provided information on the nature of the motivational extras that each teacher introduced into the experimental section and the degree to which these differentiated instruction in the experimental section from instruction in the control section. Such data allowed for formative evaluation of the effectiveness of the teacher training in causing teachers to follow the experimental guidelines, as well as later opportunities to test for relationships between level of implementation of experimental guidelines and size of effects on student outcomes.

Before collecting actual data for the study, observers visited classrooms in pairs to practice writing descriptive and comparative notes and to develop reliability in completing off-task student counts and in making ratings on Scales A, B, and C. Such practice continued (for up to two weeks) until the observers exhibited the desired focus and degree of descriptive detail in their notes and the desired level of reliability in counting off-task students and making their ratings (specifically, observers continued doing practice

observations in pairs until they reached 70 to 80% exact agreement on Scales A, B, and C as well as 70 to 80% agreement within a two-point range in off-task student counts).

Once actual data collection began, observers usually worked alone and all or most of the data from a given teacher's classes were collected by a single observer (who also collected the teacher's planning notes; administered the student questionnaire; collected the attendance, tardiness, and achievement data from the teacher; and interviewed the teacher following completion of data collection). Teachers were sometimes visited by another observer when their primary observer was not available, however, and observers occasionally were sent out in pairs throughout the data collection period in order to continue to monitor their reliability.

Achievement Measures

Achievement data collected for the experiment included percentile scores from prior testing with standardized achievement tests (used as covariables to adjust for entry level differences in student achievement) and scores on criterion-referenced measures of achievement of the content and skills taught by each respective teacher. Records maintained by each school district contained scores from the most recent standardized achievement testing of the students. As a measure representing entry level of aptitude for learning social studies content, we recorded each student's percentile equivalent score on the reading comprehension subtest of whatever standardized achievement test was used in his or her school district (if no specific subtest of reading comprehension skills was included, scores from a more general reading achievement subtest were used).

Measures of student achievement in the experimental and control sections during the semester in which the experiment was conducted were developed from students' scores on each teacher's tests and assignments. Actual scores were used rather than teacher-assigned grades, because the scores discriminated more finely than the grades and because teachers sometimes took into account factors other than quality of performance (classroom citizenship, performance on make-up or extra credit assignments) when assigning grades. Each teacher used the same tests and assignments in each of the two sections, so that scores from each pair of classes could be compared directly.

To place the scores from students of different teachers on the same scale, points earned by the students were divided by the total number of points that could have been earned to yield proportion scores, and decimal points were eliminated to yield percentage scores. Thus, regardless of how many tests or assignments a given teacher used and how many total points could have been earned on these tests or assignments, students' point totals were converted to percentage scores reflecting the percentage of possible points earned that they actually did earn. We computed separate percentages for the first half of the semester (before and during the beginning of implementation of the treatment) and for the second half of the semester (when the treatment was being implemented consistently). This allowed assessment of the possibility of change over time in the relative performance of the two class sections.

In addition, for the nine teachers who graded performance on seatwork and homework assignments and took this into account (along with test scores and other factors) when assigning grades for the course, achievement percentage scores were computed separately for performance on tests and performance on assignments. Only test score data were available for students taught by the

other two teachers. Thus, 11 pairs of classes were included in analyses of students' achievement on teacher-administered tests, but only 9 pairs of classes were available for analyses of student achievement on assignments or for analyses of total scores (combining points earned on tests with points earned on assignments and expressing the total as a percentage of the total points that could have been earned).

Student Motivation Questionnaire

Our design called for pre- and posttreatment administration of measures of student motivation in general and student motivation to learn in particular. Our literature review had indicated that, although some existing interview or questionnaire measures contained items that we could use, no existing measure would meet our needs, so that we would have to develop our own measure. The problem was that existing measures reflected existing research on student motivation, so that most such measures tapped the expectancy aspects but not the value aspects of such motivation (e.g., they focused on students' success or failure expectations), and those that did address value aspects focused on affective rather than cognitive issues (e.g., they addressed student enjoyment of academic activities but not student motivation to learn the knowledge and skills that the activities were designed to develop).

Items and formats for measuring student motivation were tested and revised on the basis of pilot work done the previous school year in three seventh-grade social studies classes. The pilot work addressed three potential methods of measuring student motivation: ratings based on observation of students' classroom behavior, interviews featuring open-ended questions, and questionnaires featuring closed-ended questions. The ratings method was dismissed

quickly, because we found that, although it is possible to generate crude measures of the apparent interest or task engagement of the class as a whole through observing and rating student behavior, it is not possible to develop valid, fine-grained measures of the motivation of individual students through such methods. Consequently, further pilot work concentrated on interview and questionnaire methods.

We had anticipated that open-ended interviewing of students under private and confidential conditions might be necessary to obtain valid measures of student motivation, because students might show strong social desirability response tendencies when filling out questionnaires. For one thing, the question and answer formats used on questionnaires call attention to the fact that students are being asked to make evaluations, whereas the questions asked during open-ended interviews tend to be more neutral. Also, even though students were assured that their questionnaire responses would be confidential, the facts that they had to write their names on the questionnaires and that the questionnaires were administered to the whole class at one time while the teacher was present in the room caused us to fear that students might be less honest in responding under these conditions than they would be during a private interview held outside of the classroom. Finally, we anticipated that students who tended toward socially desirable response sets could easily sustain such orientations when filling out questionnaires but might reveal their true feelings more detectably when answering open-ended questions at length in their own words.

Contrary to these expectations, our pilot work indicated clearly that student motivaton could be measured just as validly (but more quickly and easily) through group-administered questionnaires as through individualized

open-ended interviewing. Perhaps because they are adolescents, students at these grade levels do not tend to claim that they love school, that they always work hard, or that they think their teachers are wonderful. If anything, they tend to be bluntly critical. Their responses to open-ended interview questions were more interesting and elaborated than their questionnaire responses, but no different in terms of what they revealed about direction and intensity of motivation. In short, our pilot work led us to believe that student motivation could be measured validly as well as cheaply and efficiently through questionnaires. Furthermore, because the questionnaires would be administered twice to the same students, any tendency of individual students toward social desirability response sets would function as a constant built into both the pre- and posttreatment data sets rather than functioning as a measurement error factor that would affect one of these data sets but not the other.

The final version of the questionnaires included 46 items. A few of these dealt with the expectancy aspects of motivation, but most dealt with intrinsic motivation or motivation to learn. There was also a section on perceptions of the teacher's enthusiasm toward and methods of teaching social studies, designed to assess the degree to which students perceived their teachers as using the motivation strategies included in our Teacher's Manual. The items concerning the teachers and most of the items concerning student motivation to learn were constructed by the authors. The remaining items were adapted from work by others on student motivation in general or student motivation in social studies in particular (Chiu, 1969; Haladyna, Shaughnessy, & Redsun, 1982; Harter, 1981; Kelly & Chapman, 1977; Kozeki & Entwistle, 1984; Lloyd & Barenblatt, 1984; Mager, 1968; Schug, Todd, & Beery, 1984; Sjoberg, 1984; and Williams & Alden, 1983).

The student motivation questionnaire is shown in Appendix B. We treated all 46 items as parts of a single questionnaire for purposes of analysis, but the items were divided into three sections (labeled Questionnaire I, Questionnaire II, and Questionnaire III) when they were administered to the students because three different formats were used. The first 17 items (Questionnaire I) presented the students with pairs of bipolar statements and asked them to indicate which of the pair of statements was more true of them and to state whether the chosen statement was "really true for me" or "sort of true for me." This format was adapted from the work of Harter (1981).

The next 27 items (Questionnaire II) presented single statements that the students were asked to categorize as "very true," "sort of true," "not very true," or "not at all true." Finally, the last two items (Questionnaire III) asked the students to rank their four academic classes (language arts, mathematics, science, and social studies) in order of importance (How important is what you are learning in these classes, regardless of how much you like them?) and in order of how much they liked them (How much do you like these classes, regardless of how important you think they are?).

The questionnaires were administered early in the semester before treatment began as a premeasure and then again late in the semester as a postmeasure. The questionnaires were administered to the class as a whole, typically by covering Questionnaire I during the first 20 minutes of class time on one day and Questionnaires II and III during the first 20 minutes of class time on the following day. Individual students who were absent on questionnaire administration days filled out the questionnaire individually later when they returned to school. Teachers remained present in the classroom during questionnaire administration, but did not circulate to observe students filling out the forms.

Instructions were given by the observer, who stressed the importance of responding thoughtfully and carefully and noted that the students' responses would not be shared with the teacher or anyone else at the school. To make sure that each item was understood correctly, and also to pace the students through the items slowly enough to encourage them to respond thoughtfully, the observer instructed the students to listen while he or she read the item aloud before recording their response on the form. Forms were collected immediately upon completion of the questionnaire administration. The teachers were later given frequency distribution data indicating the numbers of students in each of their two class sections who selected each of the four response options to each item, but they were not given information on the responses of individual students.

The pretreatment questionnaire responses and the posttreatment questionnaire responses were each subjected to factor analysis (principal components method). Although the results were not identical, both factor analyses supported the existence of four factors subsuming 30 of the 46 items. As expected, one of these was a motivation to learn factor subsuming items tapping the students' concern about making sure that they understood what they were learning and their interest in learning for its own sake rather than just to meet school requirements (items 2, 4, 7, 9, 10, 11, 17, and 39). The second factor subsumed items dealing with perception of the teacher (enjoys teaching social studies, gives examples and tries to make the material interesting, solicits student opinion and allows student choice of activities). This factor subsumed items 25, 26, 27, 28, 29, 30, and 31. The third factor subsumed items (6, 21, 22, 23, 38, and 43) reflecting student conscientiousness and good work habits (turns in assignments complete and on time, gets started early rather than

waiting until the last minute). Finally, the fourth factor subsumed items (3, 5, 12, 16, 35, 36, 40, 45, and 46) reflecting interest in and perceptions of the importance of social studies (student enjoys class, finds material interesting, believes that the content is important and will be needed in the future). These four factors emerging from the factor analyses reflected our expectations based on logical analysis of the content of the quetionnaire, except that we expected that items indicating that students find social studies content and activities interesting would appear on a separate factor from items indicating that students perceive the content of social studies classes as important. Instead, both factor analyses clearly indicated that these "interest" and "importance" items were highly correlated and loaded on the same factor.

To assess reliability (stability over time) in questionnaire scores, raw score totals for the questionnaire as a whole and for the clusters of items corresponding to the four factors were computed for the pretreatment data and the posttreatment data and then correlated (after reversing the direction of scoring of the minority of items that correlated negatively with the rest of the items). These pre-post correlational analyses yielded stability coefficients of .65 for total scores and .45 to .60 for the four factor-based subscores. We saw these stability coefficients as satisfactory from two contrasting perspectives. First, they are high enough to indicate moderate stability of student motivation measures across periods of approximately four months. Second, they are not so high as to call into question the possibility of inducing significant change through experimental treatment.

Teacher Interview

Following completion of other data collection, each teacher participated in a debriefing interview. The interview began with open-ended questions concerning the costs and benefits of participating in the experiment for themselves and for their students, how closely they believed they had followed the experimental guidelines, their perceptions of and suggestions for improving the Teacher's Manual and the training workshop, and their expectations about any differences that the experiment may have produced between the achievement or motivation of the experimental section students and the achievement or motivation of the control section students. Next came a series of more specific questions on the 24 motivational strategies included in the manual. The teachers were asked to comment on the feasibility and effectiveness of each strategy, to note any qualifications or restrictions on its use that should be mentioned to other teachers, and to note any elaborations concerning when or how the strategy should be used (beyond what was said about it in the manual). Then the teachers were asked to mention any motivational principles or strategies they found to be effective that had not been included in the manual.

Finally, the teachers were asked a series of questions designed to identify confounding factors that would need to be taken into account in analyzing or interpreting the data from their classes. Specifically, they were asked to comment on class size, student composition of classes, practice effects (any tendency to teach a lesson more smoothly or otherwise effectively each time it was repeated across the day), or time of day effects (any tendency for classes taught at a particular time period to be easier or more difficult to teach than other classes) as factors that might explain any differences in observed

performance between the control and the experimental sections. In addition, the teachers were asked to identify any individual students in either section whose data should be considered suspect because of excessive absences, difficulty with the English language, or other reasons.

Data Preparation and Analysis

Student questionnaire data were recorded for each student individually and then aggregated to the level of class means for analysis (for students who had both pre- and postexperimental data available). Data were analyzed for each item individually, for the four item cluster totals corresponding to the four factors emerging from the factor analyses (perceptions of the teacher, motivation to learn, work habits, and perceptions of the interest value and importance of social studies) and for the total score summed across all 46 items. Achievement data also were recorded for individual students but aggregated to class mean levels for analysis. These included the percentile score from the standardized test of reading comprehension and the percentage scores reflecting points earned on assignments, points earned on tests, and points earned on assignments plus tests for the first half of the semester and for the second half of the semester.

Finally, scores reflecting teacher implementation levels and student task engagement rates were derived from the observation data and expressed as class means. Off-task counts for each class section were simply summed and divided by their number to yield means indicating the average number of students determined to be off-task in that class section when off-task counts were done. Similarly, the scores for Scales B and C (each of these were 5-point scales calling for ordinal measurement along a single dimension) also were summed and

averaged to produce means reflecting observers' perceived differences between the experimental and control sections in students' affective response to the activity (Scale B) and in the overall academic value of the activity (Scale C).

Two different measures had to be derived from Scale A, in order to take into account the fact that differential instruction of the two class sections could involve either similar or completely different activities. The first three points on Scale A were used when essentially the same activity was taught in each class section. Here, observers coded a "1" when they perceived no difference between class sections in how the activity was taught, coded a "2" when they noted one or more minor differences (different or extra elements planned for the experimental section), and coded a "3" if they perceived one or more major differences. These first three scores on Scale A amounted to an ordinal scale of degree of differ-entiation introduced by the teacher when teaching common activities, so they were averaged to produce a mean score reflecting this variable (that is, all scores of "1," "2," or "3" on Scale A were summed and then averaged to produce this mean score).

A score of "4" on Scale A reflected a qualitatively different situation. Here, instead of teaching essentially the same activity but introducing some degree of differentiation into its implementation in the two class sections, the teacher scheduled one activity in the control section and a different activity in the experimental section. To create a measure of the relative frequency with which each teacher implemented the experimental guidelines in this manner, the number of activities coded "4" on Scale Scale A was divided by the total number of activities that had been observed in that teacher's classroom. The resulting proportion score (called Scale A4) reflects the relative frequency with which teachers planned an entirely separate activity for the experimental section rather than merely injecting

motivational extras into the implementation of essentially the same activity. Meanwhile, the average of the "1," "2," and "3" scores on Scale A (called simply Scale A) reflects the degree of differentiation introduced when essentially the same activity was taught in both sections.

All data were analyzed at the level of class means, using correlational analyses to assess relationships among the measures and *t*-tests of significance of differences in paired means to assess treatment effects by comparing the experimental with the control classes. The latter comparisons were done both on raw change scores and on the scores adjusted for entry level reading achievement and for the order in which class sections were taught (experimental section first or control section first).

Results

Results are presented separately for classroom observation data, student motivation questionnaire data, and student achievement data.

Classroom Observation Data

Data from the observers' counts of students who were off task indicated that the teachers as a group were effective classroom managers who were successful in keeping most students engaged in the activities most of the time. Off-task counts for nine of the teachers averaged 1.7 or less, and the averages for the other two teachers were 3.0 and 4.2. In general, the classes were businesslike and orderly, with consistent attention to the teacher during lessons and engagement in assignments during seatwork times.

There were no differences between experimental and control sections in off-task behavior. Off-task counts averaged 1.5 in each of these two sets of

class sections, and the averages for experimental sections correlated .93 with the averages for the corresponding control sections. Thus, the treatment did not produce a difference in off-task student behavior. Within the restricted range of off-task average scores observed, there was evidence that two of the teachers were less successful at maintaining student attention and task engagement than the other nine teachers were, but there was no difference between the experimental sections and the control sections.

The data from Scales A, A4, B, and C provide information on how and to what degree the teachers implemented the experimental guidelines. Taken together, Scale A and Scale A4 reflect the degree to which the teachers differentiated between the two class sections by planning and implementing motivational extras in the experimental section. Scale A was a 3-point scale for measuring the degree of differentiation between the two class sections introduced by teachers when teaching essentially the same activities (1 = no difference, 2 = minor difference, and 3 = major difference). These scores averaged 1.6, indicating that the observers typically perceived either no differences at all or only a minor planned difference in how a given activity was implemented in the two class sections. Individual teachers' means ranged as high as 2.3, but the means for six of the teachers were 1.5 or below and the teacher who averaged 2.3 was the only teacher to average above 1.9.

The averages computed for Scale A4 are proportions indicating the relative frequency with which the teachers replaced an activity used in the control section with a different activity planned for the experimental section. These proportions averaged .06, indicating that, as a group, the teachers planned separate activities 6% of the time but taught the same activities in each section 94% of the time. The mean on this variable is not as interesting as the

variation, however: The proportions on Scale A4 were between .00 and .02 for six of the teachers, between .05 and .09 for three more teachers, and between .15 and .20 for the remaining two teachers. Thus, six of the teachers rarely or never planned separate activities for the two class sections, whereas the other five teachers did so between 5% percent and 20% of the time.

Across the 11 teachers considered as a set, there was a nonsignificant (-.25) negative correlation between scores on Scale A and scores on Scale A4, indicating no relationship between these variables. Some teachers introduced differentiation primarily by scheduling the same activities for each class section but introducing motivational extras into the implementation of these activities in the experimental section, other teachers introduced differentiation primarily by planning occasional special activities for the experimental section, and other teachers did some of each. Three of the teachers had low scores on both Scale A and Scale A4, indicating that they failed to implement the experimental guidelines consistently enough to create any real treatment at all. The other eight teachers implemented the guidelines more satisfactorily, although even here, most teachers did not introduce as much differentiation as we had hoped for. In particular, we had hoped for a Scale A average of about 2.3 or 2.4, but the observed average was only 1.6, and this rises only to 1.7 when the data from the three poorest implementers are removed.

Taken together, the data from Scales A and A4 indicate that the training program was essentially ineffective with three of the teachers and only moderately effective with most of the rest. These data also suggest that any treatment effects produced by the experiment would be modest at best, and this is precisely what was predicted by both the teachers (in their debriefing interviews) and the observers (who were asked to predict outcomes for the class

sections they had observed, following completion of data collection). Most teachers and observers predicted either no difference at all or a very slight difference favoring the experimental sections (once differences in entry level of student achievement and other factors were taken into account).

Scales B and C called for the observers to compare parallel activities in the two class sections in terms of students' affective response to the activity (Scale B) and the perceived academic value of the activity (Scale C). In each instance, the comparison was expressed through a rating on a 5-point scale (1= control section much better than experimental section, 2 = control section slightly better than experimental section, 3 = no difference, 4 = experimental section slightly better than control section, 5 = experimental section much better than control section). Average scores on both scales were in the desired direction (above 3.0) but only modestly so.

Scores on Scale B averaged 3.3 (range = 3.1 - 3.9) and scores on Scale C averaged 3.4 (range = 3.1 - 4.0). The fact that each teacher's mean on each of these two scales was above 3.0 indicates that the observers believed that each teacher had introduced extras that improved the effectiveness of the experimental section compared to the control section, considered in terms of both student affective response and the overall academic value of the activities. However, these perceived advantages to the experimental sections were slight: For 10 of the 11 teachers, average scores on Scales B and C ranged only between 3.1 and 3.5.

In summary, the classroom observation data indicate that the experimental and control class sections were much more similar than different. The students were mostly attentive to lessons and engaged in assignments, with off-task counts averaging only 1.5 in both the experimental and the control sections.

Eight of the 11 teachers implemented the experimental guidelines with some consistency, by introducing planned extras into the implementation in the experimental section of activities that were also taught in the control section, by planning occasional special activities for the experimental section, or by relying on both of these methods. Furthermore, in the opinion of the observers, this planned differentiation of instruction tended to have positive effects by making the experimental sections more effective than the control sections, both from the perspective of students' affective response to activities and from the perspective of the overall academic value of activities. However, teacher implementation of experimental guidelines was generally less extensive than we had hoped, so that even though differences were in the right directions they tended to be very slight, leading both teachers and observers to predict that any treatment effects observed on student motivation or achievement would be minimal.

Student Motivation Questionnaire Data

The student motivation questionnaire was administered early in the term before treatment began as a premeasure and again late in the term as a postmeasure. The questionnaire contained 46 four-point items, so that total scores could range from a low of 46 to a high of 184 (with all items scored so that high scores reflected theoretically desirable responses). As shown in the top half of Table 4, the actually observed prescore totals averaged 130.79 for the experimental sections and 134.38 for the control sections, and the observed postscores averaged 129.16 for the experimental sections and 132.86 for the control sections. Thus, both the pre- and the postscore totals for each group indicate that the students tended to circle the theoretically more desirable

Means, Stan
and t-test Comparisons

Variables
Prescores
Perceptions of Teacher Factor
Motivation to Learn Factor
Work Habits Factor
Interest and Importance Factor
Total Score
Postscores
Perceptions of Teacher Factor
Motivation to Learn Factor
Work Habits Factor
Interest and Importance Factors
Total Score

51

Table 4

andard Deviations (in parentheses),
ns for the Student Motivation Questionnaire Data

Experimental	Control	Difference
19.24 (2.24)	19.91 (1.90)	- .67*
22.44 (1.41)	23.19 (1.57)	- .75**
19.24 (.81)	19.49 (.74)	- .26**
24.77 (2.27)	25.93 (2.40)	-1.16**
130.79 (7.80)	134.38 (8.02)	-3.59**
19.30 (3.04)	19.59 (2.79)	- .29
21.89 (1.79)	22.75 (1.60)	- .85**
18.94 (1.24)	18.96 (.96)	- .03
24.36 (2.96)	25.53 (3.21)	-1.17**
129.16 (10.66)	132.86 (9.43)	-3.71**

Table 4 (cont'd.)

Variables	
Raw Change Scores	
Perceptions of Teacher Factor	
Motivation to Learn Factor	
Work Habits Factor	
Interest and Importance Factor	
Total Score	
Adjusted Change Scores	
Perceptions of Teacher Factor	
Motivation to Learn Factor	
Work Habits Factor	
Interest and Importance Factor	
Total Score	

** $p < .05$ * $p < .10$

Experimental	Control	Difference
.14 (1.52)	-.35 (1.27)	.49*
-.69 (.75)	-.39 (1.30)	-.30
-.40 (.92)	-.53 (.61)	.13
-.41 (1.16)	-.39 (1.25)	-.01
-1.96 (4.69)	-2.12 (4.04)	.16
.16 (1.29)	-.17 (1.05)	.33
-.16 (.63)	.20 (1.30)	-.36
-.01 (.68)	-.05 (.63)	.03
-.05 (1.06)	.06 (1.13)	-.11
-.81 (3.40)	-.31 (3.55)	-.50

options when responding to the questionnaire, but not so strongly as to create ceiling effects (for comparison, consider that students who chose the three-point option on all 46 items would amass a total score of 138, which is slightly higher than the observed average totals that ranged between 129 and 135).

The postscore totals are slightly lower than the prescore totals, indicating that student motivation diminished (e.g., moved in the opposite direction from the theoretically optimal) as the semester progressed. This was disappointing but not surprising, because investigators commonly report a tendency for scores on student motivation measures to become lower as the school year progresses (Good & Brophy, 1986). More disappointing was the fact that the drop in average total score was slightly greater for the experimental classes (1.63 points) than for the control classes (1.52 points). Thus, the total scores on the student motivation questionnaire showed only minor change from Time 1 to Time 2 and the change that did occur was not in the desired direction. The experimental sections not only failed to show a significant increase in scores on the student motivation questionnaire, but actually showed a slightly larger decrease than did the control sections.

The subtotals for clusters of items corresponding to the four factors noted in the factor analyses (perceptions of the teacher, motivation to learn, work habits, and perceptions of the interest value and importance of social studies content) mostly replicated the patterns observed for the total scores; that is, the means suggested moderate tendencies to select theoretically desirable response options on these four respective clusters of items, scores were slightly higher in the control sections than in the experimental sections, and the means mostly dropped slightly between Time 1 and Time 2 (the only exception to this was a slight rise in the experimental groups' mean for items dealing with perceptions of the teacher).

The last column in Table 4 shows the differences between the experimental and control group means, along with information about the statistical significance of these differences. In both the prescore and the postscore data, all five of these differences (e.g., those for the four factor scores and for the total score) are negative, indicating that the mean for the control group was higher than the mean for the experimental group. Furthermore, three of the differences (for the motivation to learn factor score, the interest and importance factor score, and the total score) were similar in size and were statistically significant at both Time 1 and Time 2. However, the differences on the perceptions of teacher factor and the work habits factor were reduced between Time 1 and Time 2, so that neither difference was statistically significant at Time 2.

Data in Table 4 also show that this change score difference no longer reached statistical significance when adjusted for entry level of student achievement. However, when the change scores that had been adjusted for entry level student achievement were also adjusted for the order in which class sections were taught (there was a general tendency for sections taught first to have higher motivation questionnaire and achievement scores than sections taught second, regardless of whether they were experimental or control sections), the group difference once again reached statistical significance, this time at below the .05 (one-way) level. Adjustments for the order in which sections were taught did not change the outcomes of group difference comparisons for change scores on the other three factors or on the total score (all such differences remained nonsignificant).

In summary, the findings concerning treatment effects on student motivation questionnaire responses were positive in that the only significant difference

in change scores reflected a small improvement in the experimental students' perceptions of the teachers combined with a slightly larger drop in the control students' perceptions of the teachers. However, the practical significance of this finding is limited (the difference was barely large enough to reach statistical significance) and its theoretical import is questionable because it reflected change on the perceptions of teacher items rather than on the motivation to learn items (when increasing student motivation to learn was the primary goal of the experiment).

Student Achievement Data

Student achievement data are shown in Table 5, broken down into scores for the first half of the term, scores for the second half of the term, and change scores (computed by subtracting first-half scores from parallel second-half scores). Analyses of raw scores (percentages of total possible points actually earned by the student) are given in the left half of the table, and analyses of adjusted scores (raw scores adjusted for entry level achievement) are given in the right half of the table.

The raw score data indicate that the experimental students scored lower than control students (significantly so on the measure of total points earned) on tests and assignments given during the first half of the term, but scored (nonsignificantly) higher than the control group students on tests and assignments given in the second half of the term. As a result of these trends, the results of the change score analyses all favor the experimental group over the control group and include significant differences for change in points earned on assignments and total points earned (the difference for points earned on tests was in the same direction but not significant).

Table 5

Means, Standard Deviations (in parentheses) and *t*-test Comparisons for the Student Achievement Data

Variables	Raw Percentage Scores			Raw Scores Adjusted for Entry Level Achievement		
	Experimental	Control	Difference	Experimental	Control	Difference
Scores from First Half of Term						
Points scored on assignments	63.26 (11.51)	67.31 (8.41)	-4.05	-1.08 (9.40)	1.09 (8.20)	-2.17
Points earned on tests[a]	61.80 (17.83)	62.54 (15.96)	-0.74	- .86 (16.93)	.86 (15.49)	-1.72
Total points earned	64.39 (9.56)	68.16 (6.84)	-3.78**	-1.33 (9.01)	1.40 (6.67)	-2.74*
Scores from Second Half of Term						
Points earned on assignments	65.51 (13.67)	64.16 (10.21)	1.35	.21 (13.74)	-.28 (9.59	.49
Points earned on tests[a]	61.47 (16.64)	59.45 (14.48)	2.02	.20 (15.09)	-.16 (11.54)	.36
Total points earned	65.66 (13.17)	64.55 (9.11)	1.12	-.26 (12.88)	.25 (7.13)	-.50
Change Scores (Second Half Minus First Half)						
Assignments points	2.25 (10.21)	-3.15 (10.36)	5.40**	1.29 (6.80)	-1.37 (7.92)	2.66
Test points[a]	-0.33 (11.12)	-3.09 (9.43)	2.75	1.06 (11.18)	-1.02 (8.25)	2.08
Total points	1.28 (8.49)	-3.61 (9.74)	4.89**	1.18 (5.80)	-1.06 (6.03)	2.23

[a] N = 11 pairs of classes for these variables; N = 9 pairs of classes for the remaining variables.

** $p < .05$ * $p < .10$

The raw score differences in achievement between the first half of the term (much of which was pretreatment in most classes) and the second half of the term (when the treatment was in effect throughout) are substantial enough to represent practical as well as statistical significance (e.g., they correspond to an effect size of approximately one-half of a standard deviation in raw achievement percentages). However, these significant effects on change in raw achievement percentages did not hold up in the analyses of scores adjusted for entry level achievement on standardized tests. The adjusted scores showed the same general trends as the raw scores, but the group differences translated into effect sizes of only about one-third (instead of one-half) of a standard deviation in achievement scores. This was not a big enough difference to reach even the .10 significance level because of the small sample used in the present study, although a comparable difference would have been considered statistically significant if it had been obtained in a study based on a sample of 20 or 30 teachers.

Adjusting the achievement scores for the order in which class sections were taught (in addition to adjusting them for scores on standardized achievement tests) did not produce any significant changes in the findings as presented in Table 5. In summary, then, the data indicate that implementation of the treatment was associated with a relative improvement in the achievement levels of the experimental section students (compared to those of the control section students) from the first half to the second half of the term. These differences in raw scores were strong enough to be considered statistically significant, but parallel differences in the adjusted scores, although still noticeable, were no longer statistically significant. Thus, implementation of the treatment was associated with improvement in student achievement levels, although this

improvement was confounded with differences in entry level of achievement that occurred despite random assignment of classes to treatments.

Relationships Among the Measures

Correlations among the measures were computed and examined both to develop additional understanding about what occurred and to assess expectations based on theoretical considerations. Table 6 presents correlations among off-task scores, implementation scores, and comparative change scores from the student motivation questionnaire data. For these scores, the teacher (N = 11) was the unit of analysis, and the scores reflected either combination or comparison of data from each teacher's experimental and control section.

The first off-task score is each teacher's average number of students determined to be off-task by the observer (averaging across the experimental and control sections combined). The second off-task score is a difference score computed by subtracting the off-task average in the experimental section from the off-task average in the control section and adding a constant to eliminate negative numbers. High scores on this variable indicate a tendency for more students to be off task in the control section than in the experimental section. The implementation scores are the means from Scales A, A4, B, and C as described previously. The comparative change scores were computed from the student motivation questionnaire data (specifically, the four subtotals corresponding to the four factors, plus the total score) by subtracting the average prescore-to-postscore change in the control section from the average prescore-to-postscore change in the experimental section and adding a constant to eliminate negative numbers. High scores on these variables indicate that the teacher's experimental section students showed greater gains (or smaller losses) on the motivation questionnaire variable than the teacher's control students did.

Table 6

Correlations (across 11 teachers) Among Off-Task Scores, Implementation Scores, and Comparative Change Scores From the Student Motivation Questionnaire Data

Off-Task Scores	2	3	4	5	6	7	8	9	10	11
1. Average Number of students off task (E and C sections combined)	09	-47*	37	-53**	-40	25	-06	-24	03	-13
2. Average difference (C-E)		-41	51*	15	37	24	40	46*	18	18
Implementation Scores										
3. Scale A			-25	32	45*	-73**	-44*	-52**	-39	-56**
4. Scale A4				-40	-06	-02	67**	16	37	36
5. Scale B					83**	-36	-02	23	-13	-08
6. Scale C						-48*	02	22	-32	-23
Comparative Change (E-C) in Motivation Scores										
7. Perceptions of Teacher Factor							20	50*	36	48*
8. Motivation to Learn Factor								64**	58**	83**
9. Work Habits Factor									15	70**
10. Interest and Importance Factor										65**
11. Total Score										

** $p < .05$ * $p < .10$

The first row in Table 6 shows that teachers who had more students off task tended to get lower scores on Scales A and B. These correlations show that teachers who implemented the treatment guidelines more consistently (by differentiating more clearly between the experimental and control sections in how they implemented similar activities and doing so in ways that the observers judged to be effective from the standpoint of students' affective response to the activities) obtained better student engagement (or at least, less obvious student disengagement) in both of their class sections. This suggests that the teachers who scored higher on Scales A and B were better motivators (or possibly better classroom managers or better all-around instructors) than teachers who scored lower on these measures.

The second row in Table 6 indicates that the off-task difference scores correlated positively with Scale A4 and with comparative change on the work habits factor. These relationships indicate that there was relatively more positive change on the work habits factor and less off-task behavior in the experimental sections when the teacher was one of those who planned special activities for the experimental section (e.g., when the teacher scored highly on Scale A4) than when the teacher was not. This can be interpreted as a positive finding indicating that good implementation of treatment guidelines produced good results in the experimental sections, although we had expected that special activities in the experimental sections would be linked more closely with change on the other three factors rather than on the work habits factor.

Intercorrelations among the implementation measures show a high positive correlation between Scales B and C. Thus, for the most part, the observers'

ratings of the relative effectiveness of activities in eliciting a good affective response from students closely paralleled their ratings of the overall effectiveness of the same activities as vehicles for teaching social studies. Some degree of positive relationship probably was to be expected here, but this unusually high correlation suggests a degree of halo effect in the observers' ratings (based on a global perception that a given activity was implemented more effectively in one of the class sections than in the other).

Scale A correlated positively with Scales B and C (significantly with Scale C). This indicates that the observers believed that when teachers differentially implemented the same basic activity in the two class sections, they tended to do so in ways that made for a more effective activity in the experimental section (especially with regard to the effectiveness of the activity as a vehicle for social studies instruction). In contrast, scores on Scale A4 showed nonsignificant negative relationships with Scales A, B, and C, indicating that the frequency with which teachers planned special activities for the experimental section was unrelated to the degree or level of effectiveness with which teachers differentiated their implementation of the same activities in these two class sections.

The correlations between the implementation measures and the measures of comparative change in student motivation underscored the fact that Scale A and Scale A4 were measuring two quite different approaches that teachers could take to implementing the treatment guidelines. Contrary to expectations, Scale A correlated negatively with the comparative change scores from the motivation questionnaire. We had expected that teachers who differentiated more when teaching the same activity in the two class sections (e.g., by injecting motivational extras into the activity as implemented in the experimental section)

would show comparatively more desirable change in motivation scores in the experimental section, especially on the measure of motivation to learn. However, Scale A correlated negatively with four of the five motivation measures, including the motivation to learn measure.

In contrast, Scale A4 showed mostly positive correlations with the motivational change measures, including a significant positive correlation with the measure of comparative change on the motivation to learn factor. Thus, the teachers who got better results tended to be those who planned special activities for the experimental sections rather than those who concentrated on implementing the guidelines primarily by teaching the same activities in both sections but adding motivational extras to implementation in the experimental section.

Scales B and C also had mostly negative correlations with the comparative change in motivation measures, including a significant negative correlation between Scale C and comparative change on the perceptions of teacher factor. These data appear to be part of the same pattern of relationships described above in contrasting the correlates of Scale A with those of Scale A4 (like Scale A but unlike Scale A4, Scales B and C reflect situations in which the teachers taught essentially the same activity in each class section).

The correlations among the comparative change in motivation scores were all positive (although not always significant), indicating that change in a given direction on any one of the factor scores tended to be accompanied by change in the same direction in the other three factor scores and on the total score.

In summary, the data in Table 6 indicate that the teachers who elicited relatively more positive motivational change scores in their experimental

section compared to their control section tended to be those who planned more special activities for the experimental section and were more successful in keeping students engaged in these activities, but who did not differentiate much when they taught the same activity in both class sections. The latter finding was unexpected and is contrary to the theorizing that laid the basis for this experiment.

Besides being correlated with one another, the variables shown in Table 6 were also correlated with the students' standardized test scores and with scores reflecting change (from the first half to the second half of the term) in levels of student achievement on teacher-administered tests and assignments. The correlations yielded by these analyses, done separately for the experimental and the control groups, are shown in Table 7.

The average number of students off task showed nonsignificant negative correlations with standardized test scores but generally positive correlations with achievement change scores, including a significant correlation with change in achievement on tests in the experimental classes. The latter finding is difficult to interpret without more information. Perhaps it indicates that implementation of the treatment (beyond some minimal level at least) made more of a positive difference in the classes of teachers who were somewhat less effective as motivators, classroom managers, or instructors than other teachers in the sample were.

The off-task difference measure (on which high scores indicate a tendency for more students to be off task in the control section than in the experimental section) showed generally positive correlations with achievement measures from the experimental sections, as expected. However, this included a significant

Table 7

Correlations of Off-Task Scores, Implementation Scores, and Comparative Change Scores from the Student Motivation Questionnaire with Standardized Achievement Test Scores and Achievement Change Scores (presented separately for experimental and control groups)

	Standardized Achievement Test Scores		Achievement Change Scores: Assignments		Tests		Total	
Off-Task Scores	E	C	E[a]	C[a]	E	C	E[a]	C[a]
1. Average Number of students off task (E and C sections combined)	-24	-35	33	43	49*	-21	21	25
2. Average difference (C-E)	64**	39	50*	16	37	-02	41	20
Implementation Scores								
3. Scale A	-17	-05	04	-26	-27	24	-05	-04
4. Scale A4	26	26	29	51*	46*	01	19	37
5. Scale B	06	-17	-28	-83**	-48*	06	-43	-58**
6. Scale C	34	01	12	-54*	-28	16	-06	-23
Comparative Change (E-C) in Motivation Scores								
7. Perceptions of Teacher Factor	03	-12	-17	07	11	-29	04	-12
8. Motivation to Learn Factor	17	10	-34	-01	-06	-07	-38	-18
9. Work Habits Factor	42*	11	-28	-13	-29	-20	-16	-26
10. Interest and Importance Factor	-26	00	-46	-16	33	-24	-38	-35
11. Total Score	09	-01	-51*	-03	-20	-32	-45	-32

[a] N = 9 classes for correlations in these columns; N = 11 classes for correlations in the remaining columns.

** $p < .05$, * $p < .10$

correlation with standardized test scores in addition to a significant correlation with the change score for achievement on assignments, once again indicating that group differences in achievement gain were confounded with differences in entry level of achievement.

The implementation measures (Scales A, A4, B, and C) did not show the expected pattern of relationships with the achievement change scores (positive correlations for the experimental group and nonsignificant or negative correlations for the control group). Scale A showed no significant correlations with any of the achievement measures, and Scale A4 showed positive correlations, of which two reached statistical significance levels (one for the assignments change score in the control group and one for the tests change score in the experimental group). Taken together, the data for these two scales reconfirm the pattern seen in Table 6: Instead of indicating that teachers who scored high on these two scales got better results than teachers who scored low on these two scales, the data indicated that teachers who implemented the treatment guidelines by planning special events in their experimental classes (those who scored high on Scale A4) got better results than teachers who implemented by teaching essentially the same activities in both classes but introducing motivational extras into the experimental section (those who scored high on Scale A).

The correlations of Scales B and C with achievement change scores were mostly negative, including several significant correlations. Again, these relationships are part of the unexpected pattern indicating that teachers who introduced greater differentiation when implementing essentially the same activity in the two class sections produced less desirable change than teachers who failed to differentiate much when teaching the same activity in the two sections.

Correlations between the comparative change scores on the student motivation questionnaire and the achievement scores were mostly negative and nonsignificant for both the experimental and the control sections. Thus, comparative changes in student motivation in these two groups were essentially independent of concurrent changes in achievement levels, at least when analyzed at the level of class means.

Changes on Individual Motivation Questionnaire Items

In addition to analyzing changes in the total score and in the four subtotal scores corresponding to factor scores, we tested the significance of the mean change scores of the experimental and control groups on each of the 46 items in the student motivation questionnaire. These analyses indicated that, in addition to the already reported difference on the perceptions of teacher factor score, the experimental group showed significantly ($p < .10$, one-way) more desirable change on the following items: 4 (student would try to figure out the reason for mistakes on assignments rather than just forget about them), 6 (student gets started early on assignments rather than waiting until the last minute), 13 (student sees social studies assignments as opportunities to apply learning rather than just as ways for the teacher to evaluate achievement), 26 (student reports that the teacher lets him or her choose assignments), and 29 (student reports that the teacher tells the class why it is important to know what they are learning). However, the control group showed relatively more desirable change than the experimental group on the following items: 15 (student reports that it is important to put the text into one's own words rather than to just memorize), 34 (student believes that he or she can meet the class requirements well enough to earn an acceptable grade), 39 (student usually previews

assignments before starting), 40 (student agrees that it is hard to take social studies seriously because it is not very meaningful or worthwhile), 41 (student reports often reading "other" articles when using resource books or encyclopedias), and 46 (student's liking for social studies compared to the other three academic areas).

There is no obvious pattern that clearly differentiates these two sets of items, although the first set emphasizes the importance of taking assignments seriously and trying to learn what they are intended to teach, whereas the second set includes several items that tap the more affective aspects of intrinsic motivation. Thus, to some extent these data suggest that motivation to learn and intrinsic motivation may be even more different than we had anticipated, and that treatments designed to increase one of these two motivational variables might not affect or even might produce decreases in the other.

Discussion

As both the teachers and the observers had predicted, the outcomes of this experiment were favorable to the experimental group but of limited significance. Raw scores on the student motivation questionnaire revealed only minor (and mostly negative) changes, both for total score and for the four subtotals corresponding to factor scores. The only significant difference in the change score comparisons did favor the experimental group; however, the difference was on the perceptions of teacher factor rather than on the motivation to learn factor that was the primary focus of the experiment. Analysis of achievement change scores revealed both statistically and practically significant differences favoring the experimental group. These differences in achievement change between the first and the second half of the semester were confounded with preexisting differences in entry

level of achievement, a complication that was unexpected and is theoretically troubling but that does not detract from the importance of the achievement change findings (there is no reason to attribute these findings to preexisting differences in student achievement rather than to the motivational treatment, because there is no reason to expect that high entry-level achievers would do better in the second half of the semester than they did in the first half).

The teachers and observers had expected minimal differences between the experimental and control groups in effects on student motivation and achievement because they noted only minor and subtle differences in how most teachers taught their two sections. Part of the explanation for this lies in the treatment guidelines themselves. Although the teachers were exposed to 24 strategies that varied in scope and probable impact on students, the training workshops emphasized certain of the motivation to learn strategies (Strategies 4 through 10 in Table 3) that involved introducing theoretically important yet limited and subtle differences in the introductions to activities and the elaboration of content during interactions with students. Thus, even if the teachers had differentiated more clearly and consistently when teaching the same activities in the two different sections (e.g., even if scores on Scale A had been higher) the differences in what went on in the two class sections would still have been limited and subtle.

Even so, it is clear that the potential for demonstrating strong effects on student outcomes in this study was limited by spotty implementation of treatment guidelines by the teachers. Part of the problem appeared to be the quality of the training workshops. The first workshop was less focused and efficient than the second and third workshops were, and this probably contributed to the fact that the majority of poor implementers were among the teachers who attended the first workshop.

A second problem was the order in which the class sections were taught. Even though the guidelines made it clear that teachers were to plan normally for the control section and then augment these plans with extras for the experimental section, the four teachers who taught the experimental section first could not shake off the feeling that their participation in the experiment involved taking something away from their control group students rather than giving something extra to their experimental group students. Consequently, as a group these teachers tended to differentiate less clearly between the two sections than the other teachers did, either because they did not plan as many clear-cut differences in the first place or because they injected elements into their instruction of their control sections that tended to compensate for the planned extras injected into their instruction of the experimental sections. For example, such teachers might plan and implement the use of several concrete examples or analogies intended to personalize the content or make it more visualizable and meaningful to the students in the experimental section and then use different but equally effective examples or analogies when teaching the control section.

Finally, additional difficulties were encountered with teachers who claimed that compliance with treatment guidelines was difficult for them because it conflicted with their preferred teaching style. These teachers did not object to the motivational principles themselves (the teachers were unanimous in acknowledging the validity and applicability of these principles, although some of them suggested qualifications on when or how often particular principles should be used). Instead, these teachers objected to the idea of planning specific motivational strategies in advance and then being bound to follow through with these plans. These teachers favored a modified Socratic style of instruction,

so that most of their interactions with students involved asking questions about the content, eliciting responses, elaborating on those responses and making other relevant comments about the content, then asking another question, and so forth. These teachers believed that, rather than planning specifics in advance, they could teach more effectively by relying on their knowledge and experience to enable them to make on-the-spot decisions about what content to emphasize, what examples to use, and so on according to their perceptions of the needs of the class as a whole and of the particular student with whom they were interacting at the time. Frustration over this issue contributed to a decision by two of these teachers to discontinue participation before the end of the semester, although they agreed to supply achievement data and allow administration of the posttreatment student questionnaire (their data were still usable because these teachers were among the first group to begin participation in the experiment and they did not withdraw until almost the end of the semester, so that the treatment was in effect in their classes, at least ostensibly, for as long as it was in most of the other classes).

These implementation problems raise difficult methodological issues. Most of them appear solvable given sufficient time and resources: Training manuals and workshop procedures could be perfected and larger samples of teachers could be recruited so that data from poor implementers could be analyzed separately from data from good implementers. However, there appear to be realistic limitations on how much differentiation between sections can be expected using designs that both (a) call for teachers to teach experimental sections in a more ideal fashion than they teach control sections and (b) leave it largely up to the teachers to decide what to do and how to do it. Under these circumstances, many teachers will minimize differentiation between sections out of concern

that they may be shortchanging their control group students otherwise (especially if they teach the experimental section first). Thus, investigators who want to use designs calling for the same teachers to teach differently in two or more different sections may have to go to the extent of developing differential scripts for teachers to follow if they wish to ensure that the intended differentiation between sections actually occurs. This is realistic for a special unit lasting a week or two, but it becomes much less realistic for studies planned to extend over a full semester or school year.

If the present experimental design were repeated, several adjustments would be in order. First, a larger sample of teachers would be recruited, training would be more extensive but would be completed prior to the beginning of the school year, and teachers who were not prepared to fully commit themselves to implementing the treatment guidelines would be dropped from further participation. The pretreatment motivation questionnaire would be administered as close to the beginning of the school year as possible. In order to focus more directly on the strategies for motivating students to learn, teacher training (and treatment guidelines) would be confined to these strategies (Strategies 1-13 in Table 3). The strategies for capitalizing on existing intrinsic motivation (Strategies 14-24 in Table 3) would be omitted or used in a separate study. Finally, the teachers would all be allowed to teach the control section first and the experimental section second, to reduce concerns about taking something away from the control group students. (Contrary to expectations based on the notion that practice effects would lead to successive improvement across the school day as teachers taught the same lessons and activities in different class sections, analyses of order effects in the present study indicated that the classes taught first actually scored slightly better on student motivation

and achievement outcome measures than the classes taught second. Furthermore, most of the teachers and observers believed that practice effects, if present at all, were only minor and unlikely to have a significant effect on outcomes).

Replication of the study at lower or higher grade levels might also yield more significant results. The effectiveness of the present motivation approach depends on the effectiveness of the teacher as a model and socialization agent for the students. The present study was done at grade levels populated by students who were at developmental stages that involve withdrawal of emotional investment in adults and curriculum content in favor of identification with peers and preoccupation with personal growth issues. More satisfactory outcomes might be observed in the elementary grades (where the students tend to identify with the teachers as authority figures) or in the upper elementary grades when the development of formal operations and related cognitive changes make students more able and willing to process what they are learning actively and reflect on its meanings and implications).

In summary, the findings are mixed. It is encouraging to be able to report relative advantages to the experimental group in motivation and achievement change scores, especially given the small sample, the poor implementation by many of the teachers, and the fact that treatment did not begin until several weeks into the semester in more than half of the classes. However, the differences in achievement gain were confounded with differences in entry level of achievement, the significant motivation difference was on the perceptions of teacher factor rather than the motivation to learn factor, and the teachers who got the best results tended to be those who implemented the guidelines primarily by planning special activities in their experimental section (those who scored highly on Scale A4) rather than the teachers who introduced subtle

differences into their implementation of essentially the same activities in the two sections (those who scored high on Scale A).

Thus, although interpretation is risky because implementation was poor (perhaps scores on Scale A would have to reach some threshhold level, not attained by many if any of the teachers in this study, before positive effects on outcomes could be expected), the data suggest that motivation to learn may be even more cognitive and less affective than we have interpreted it to date, and even more different from (perhaps even somewhat negatively correlated with) intrinsic motivation than we had anticipated. This suggests that consistent teacher implementation of motivation to learn strategies might produce more obvious and positive outcomes on achievement measures than on motivation measures (especially conventional measures that stress attitudes and other aspects of intrinsic motivation rather than the cognitive dispositions involved in student motivation to learn).

References

Anderson, C. W., & Smith, E. L. (1987). Teaching science. In V. Richardson-Koehler (Ed.), Educators' handbook: A research perspective. New York: Longman.

Anderson, L. (1981). Short-term student responses to classroom instruction. Elementary School Journal, 82, 97-108.

Anderson, L., Brubaker, N., Alleman-Brooks, J., & Duffy, G. (1984). Making seatwork work (Research Series No. 142). East Lansing: Michigan State University, Institute for Research on Teaching.

Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist, 37, 122-147.

Bandura, A., & Schunk, D. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. Journal of Personality and Social Psychology, 41, 586-598.

Blumenfeld, P., Hamilton, V., Bossert, S., Wessels, K., & Meece, J. (1983). Teacher talk and student thought: Socialization into the student role. In J. Levine & M. Wang (Eds.), Teacher and student perceptions: Implications for learning (pp. 143-192). Hillsdale, NJ: Erlbaum.

Brophy, J. (1981). Teacher praise: A functional analysis. Review of Educational Research, 51, 5-32.

Brophy, J. (1983a). Conceptualizing student motivation. Educational Psychologist, 18, 200-215.

Brophy, J. (1983b). Research on the self-fulfilling prophecy and teacher expectations. Journal of Educational Psychology, 75, 631-661.

Brophy, J. (1986). On motivating students (Occasional Paper No. 101). East Lansing: Michigan State University, Institute for Research on Teaching.

Brophy, J. (1987). Socializing student motivation to learn. In M. Maehr & D. Kleiber (Eds.), Advances in motivation and achievement (Vol. 5, pp. 181-210). Greenwich, CT: JAI Press.

Brophy, J., & Kher, N. (1986). Teacher socialization as a mechanism for developing student motivation to learn. In R. Feldman (Ed.), Social psychology applied to education. Cambridge, England: Cambridge University Press.

Brophy, J., Rohrkemper, M., Rashid, H., & Goldberger, M. (1983). Relationships between teachers' presentations of classroom tasks and students' engagement in those tasks. Journal of Educational Psychology. 75, 544-552.

Chiu, L. (1969). A factorial study of academic motivation. (1968 Ed.D. dissertation, Columbia University). Ann Arbor: University Microfilms International.

Corno, L., & Mandinach, E. (1983). The role of cognitive engagement in the classroom learning and motivation. Educational Psychologist, 18, 88-108.

Deci, E., & Ryan, R. (1985). Intrinsic motivation and self-determination in human behavior. New York: Plenum.

Doyle, W. (1983). Academic work. Review of Educational Research, 53, 159-199.

Duffy, G., Roehler, L., Meloth, M., Vavrus, L., Book, C., Putnam, J., & Wesselman, R. The relationship between explicit verbal explanation during reading skill instruction and student awareness and achievement: A study of reading teacher effects. Reading Research Quarterly, 21, 237-252.

Dusek, J. B. (Ed.). (1985). Teacher expectancies. Hillsdale, NJ: Erlbaum.

Dweck, C., & Elliott, E. (1983). Achievement motivation. In P. Mussen (Ed.), Handbook of Child Psychology (4th ed.) (Vol. 4, pp. 643-691). New York: Wiley.

Feather, N. T. (Ed.). (1982). Expectations and actions. Hillsdale, NJ: Erlbaum.

Good, T.L., & Brophy, J.E. (1986). Educational psychology: A realistic approach (3rd ed.). New York: Longman.

Good, T. L., & Brophy, J. E. (1987). Looking in classrooms (4th ed.). New York: Harper & Row.

Haladyna, T., Shaughnessy, J., & Redsun, A. (1982). Correlates of attitudes toward social studies. Theory and Research in Social Education, 10, 1-26.

Harter, S. (1981). A new self-report scale of intrinsic vs. extrinsic orientation in the classroom: Motivational and informational components. Developmental Psychology, 17, 300-312.

Keller, J. (1983). Motivational design of instruction. In C. Reigeluth (Ed.), Instructional-design theories and models: An overview of their current status (pp. 383-434). Hillsdale, NJ: Erlbaum.

Kelly, E., & Chapman, D. (1977). Explaining course oriented attitude: A canonical analysis. Educational Research Quarterly, 2(3), 52-60.

Kolesnik, W. B. (1978). Motivation: Understanding and influencing human behavior. Boston: Allyn & Bacon.

Kozeki, B., & Entwistle, N. (1984). Identifying dimensions of school motivation in Britain and Hungary. British Journal of Educational Psychology, 54, 306-319.

Lepper, M. & Greene, D. (Eds.). (1978). The hidden costs of reward: New perspectives on the psychology of human motivation. Hillsdale, NJ: Erlbaum.

Lloyd, J., & Barenblatt, L. (1984). Intrinsic intellectuality: Its relations to social class, intelligence, and achievement. Journal of Personality and Social Psychology, 46, 646-654.

Madsen-Nason, A., & Lanier, P. (1986). Pamela Kaye's general math class: From a computational to a conceptual orientation (Research Series No. 172). East Lansing: Michigan State University, Institute for Research on Teaching.

Maehr, M. (1984). Meaning and motivation. Toward a theory of personal investment. In R. Ames & C. Ames (Eds.), Research on motivation in education: Vol. 1. Student motivation (pp. 115-144). Orlando, FL: Academic Press.

Mager, R. (1968). Developing attitude toward learning. Palo Alto, CA: Fearon.

Malone, T., & Lepper, M. (in press). Making learning fun: A taxonomy of intrinsic motivation for learning. In R. Snow & M. Farr (Eds.), Aptitude, learning, and instruction: Vol. 3. Conative and affective process analysis. Hillsdale, NJ: Erlbaum.

McCombs, B. (1984). Processes and skills underlying continuing intrinsic motivation to learn: Toward a definition of motivational skills training and interventions. Educational Psychologist, 19, 199-218.

Rohrkemper, M., & Bershon, B. (1984). Elementary school students' reports of the causes and effects of problem difficulty in mathematics. Elementary School Journal, 85, 127-147.

Schug, M., Todd, R., & Beery, R. (1984). Why kids don't like social studies. Social Education, 48, 382-387.

Sjoberg, L. (1984). Interests, effort, achievement, and vocational preference. British Journal of Educational Psychology, 54, 189-205.

Weiner, B. (1984). Principles for a theory of student motivation and their application within an attributional framework. In R. Ames & C. Ames (Eds.), Research on motivation in education: Vol 1. Student motivation (pp. 15-38). Orlando, FL: Academic Press.

Weinstein, C., & Mayer, R. (1986). The teaching of learning strategies. In M. C. Wittrock (Ed.), Handbook of research on teaching (3rd. ed., pp. 315-327). New York: Macmillan.

Williams, J., & Alden, S. (1983). Motivation in the composition class. Research in the Teaching of English, 17, 101-112.

Wlodkowski, R. J. (1978). Motivation and teaching: A practical guide. Washington DC: National Education Association.

Appendix A

Teacher's Manual

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OVERVIEW OF THE STUDY

The problem. Too many students attend to lessons in a passive way without reflecting much about what they are hearing and work on assignments mostly just to get them done rather than to learn something from them. Even if they are concerned about meeting requirements and getting acceptable grades, too many students lack interest in the content they are learning. They see it as material to be learned to pass tests or complete assignments, but not as input that can enrich the quality of their lives or help them to understand and respond to present and potential challenges in daily living.

Motivation to learn. We see such students as lacking motivation to learn, which we define as the predisposition to take classroom lessons and assignments seriously by attempting to get the intended academic benefits (knowledge, skills) from them. Students who approach a task with motivation to learn think about the meanings and implications of the task, not just about meeting its requirements. They want to understand the content presented, to be able to relate it to their prior knowledge, and to "make it their own" by being able to discuss it in their own words.

Most students do not often display this kind of motivation to learn. The reasons probably include the following: (a) students are not voluntarily studying chosen material--instead, they are compelled to attend school and study a curriculum developed for them by someone else; (b) the pressure to meet requirements and earn acceptable grades makes many students more conscious of these factors than of what they are supposed to be learning; and (c) school is in session for nine months each year, and it is easy for both teachers and students to fall into routines ("the daily grind") and begin to concentrate on merely doing what has to be done without thinking much about the purposes or larger meanings of these activities.

The Student Motivation Study. The Student Motivation Study is an experiment to be conducted in junior high social studies classes. Its goal is to increase the levels of student motivation to learn observed in these classes by training teachers to be more aware of the need to stimulate student motivation to learn when planning and introducing activities to their students and to use systematically a set of motivational strategies believed to be effective for this purpose.

Experimental design. The experiment involves comparing control sections taught in the usual manner with experimental sections in which special motivational strategies have been introduced. Each teacher will be his or her own control, in the sense that the statistical analyses for the experiment will involve comparing each teacher's experimental section with that same teacher's control section, rather than comparing sections taught by a given teacher with sections taught by other teachers. Consequently, each teacher will use his or her own preferred methods of teaching social studies, and it does not matter that teachers will teach somewhat different content, use different assignments and tests, etc. Measures of student motivation to learn will be developed from questionnaires administered in each section at the beginning and end of the experimental period (September 1985-February 1986). Achievement measures

will be developed from grades on the tests and assignments that each teacher uses (adjusted for students' scores on standardized achievement tests, if necessary). The motivation measures will be the primary measures of interest, but achievement data will also be collected to see if improving student motivation (if we should be successful in doing so) leads to improved achievement.

Procedures. In cooperation with each teacher, we will identify the two social studies sections at the same grade level that are most similar in size and student composition and then randomly assign one of these to be the experimental section and the other to be the control section. Teachers will plan their instruction in these sections (and any other equivalent social studies sections that they may teach) in the usual way. Then, they will add to or adapt these plans for the experimental section in order to incorporate one or more of the motivational strategies discussed in this manual. The basic rule of thumb will be that each experimental class will include at least one thing that is different or in some way involves something extra compared to what is done in that day's control section.

Teachers will make brief records of these plans (focusing on the differences to be introduced between the control and experimental sections) on specially prepared forms that allow automatic production of a second copy. The copies will be given to the observers who will visit 1-2 times per week to note similarities and differences between the two sections. Studying the teacher's plans in advance will prepare the observers to notice the key differences between the sections (we anticipate that some of these will be so subtle that observers might miss them if they did not know in advance what to look for). During visits, observers will sit quietly in the back or side of the class and record information about the nature of the lessons and activities presented and of the students' apparent response to them (focusing on similarities and differences between the two class sections observed that day).

The teachers' records of their plans and the observers' records of their classroom visits will be analyzed to assess the nature and extent of the "different" or "extra" elements added to the experimental sections for motivational reasons. These data will allow us to assess the degree to which each teacher implemented the guidelines by differentiating between the control and the experimental class sections. Used in collaboration with the student questionnaire and test data, this information will allow us to determine the effects of the special motivational strategies on students' motivation, attitudes, and achievement. All data taken from both teachers and students will be anonymous in the sense that information will be recorded by code number rather than by name and findings will be reported for groups rather than for individuals. Data on individual teachers or students will not be shown to or discussed with anyone else.

Time lines. Teacher training will be done in September so that the experiment can start as soon as possible after the beginning of the school year. Training will be accomplished through a series of small group workshop meetings, supplemented by time for individual planning and preparation. Teachers will have opportunities to share insights and suggestions at the workshop meetings, and to plan in pairs or groups rather than individually (if they wish).

As soon as possible after the beginning of the school year, experimental and control sections will be identified for each teacher and observers will be

assigned to teachers. Observers will administer the pre-questionnaire to the students in these two sections at the earliest convenient time once the class rosters are finalized (parental permission may have to be obtained before these questionnaires can be administered).

Throughout the rest of the semester (September-February), observers will visit 1-2 times per week at agreed upon times, observing both the experimental and the control sections on any given day. Teachers will supply observers with copies of their plans (highlighting the special treatment planned for the experimental section on each day) approximately one week in advance. When tests or other evaluation devices are administered, teachers will provide a copy of the test and a record of the scores obtained by the students in the experimental and control sections. Teachers will also supply copies of any dittos or handouts used in these classes.

In February, the post-questionnaire will be administered to the experimental and control sections by the observer. Also, a debriefing interview will be scheduled with each teacher, in which we will solicit the teacher's views about the experiment as a whole, the pros and cons of each recommended strategy, the reasons why some strategies were used more often than others, and so on. Finally, student attendance and tardiness data will be collected at this time. The experiment itself and the teachers' involvement in it will end after February 1986. Data analysis and reporting will be done over the next few months by the Michigan State University staff.

Summary of the teachers' role. In summary, each participating teacher will be required to do the following: (a) participate in the training workshop meetings; (b) plan special motivational strategies for use in the experimental section each day and give copies of these daily plans to observers approximately one week in advance; (c) schedule one class period at the beginning of the year and another near the end of the year for administration of the questionnaires; (d) arrange for observers to visit 1-2 times per week in the experimental and control sections; (e) supply copies of dittos or handouts in each section and of the scores of the students on tests and graded assignments; (f) supply copies of students' attendance and tardiness records; and (g) participate in the debriefing interview at the end of the year.

In exchange for this involvement, each teacher will receive (a) this manual and the training workshops designed to increase skills for motivating students to learn; (b) an honorarium to provide partial compensation for personal time devoted to the experiment ($200.00 for participation in the training workshop meetings and associated individual planning and preparation activities and $200.00 for time devoted to experimental activities during the fall-winter semester); (c) a copy of the report describing the findings of the study; and (d) (if desired) a summary of the questionnaire responses made by the students in the experimental and control sections.

MOTIVATIONAL STRATEGIES

The motivational strategies to be discussed have been identified through systematic research of the literature on the topic and observation and interviewing of teachers. We have boiled a vast literature down to a short list of strategies by eliminating unnecessary jargon, combining ideas that amount to

the same principle, and eliminating ideas that do not apply to the classroom context or to the process of motivating students to learn academic content and skills.

Student behavior in classrooms is driven by a variety of motives: desire to socialize and work with others (affiliation, cooperation), desire to achieve success and earn good grades (achievement, social comparison, competition), task interest or enjoyment, desire to avoid failure or negative consequences, and desire to please or impress peers, parents, or the teacher. We acknowledge the relevance (and often the appropriateness) of these and other possible student motives, but our emphasis in this experiment is on student motivation to learn, and the strategies that we advocate are designed to stimulate such motivation to learn.

Student Motivation to Learn

Student motivation to learn can be seen as both a general trait and a situation-specific state. As a general trait, motivation to learn is an enduring disposition to value learning--to approach the process of learning with effort and thought and to take pride in acquiring knowledge and skill. In specific situations, a state of motivation to learn exists when students engage purposefully in classroom activities by trying to learn the concepts and master the skills involved. Students who are motivated to learn will not necessarily find classroom activities intensely pleasurable or exciting, but they will take them seriously, find them meaningful and worthwhile, and try to get the intended benefits from them. The goal of this experiment is to maximize the degree to which the students in your experimental section attend to lessons and approach assignments with such motivation to learn.

Several implications of this definition should be kept in mind. First, note that motivation to learn is viewed as something that exists in the student, not the activity or task. Motivation to learn is a predisposition, attitude, or learning set adopted by the student and applied to the task, whatever the interest value or enjoyment potential of that task may be. Thus, teachers can stimulate students to approach a task with motivation to learn, even when the students do not find the task particularly interesting or enjoyable.

Second, note that task interest or enjoyment, while desirable, does not ensure motivation to learn and cannot be equated with it. Interest and enjoyment are primarily affective (emotional) responses to an activity, resulting primarily in pleasure. In contrast, motivation to learn is a primarily cognitive (intellectual) response to an activity, involving attempts to make sense of the experience, understand the input and relate it to prior knowledge, and master the skills that it promotes. Motivation to learn implies an active and thoughtful engagement in the activity. When motivated to learn, students pay attention not only to the activity itself but to their own responses to it. They organize and store new content for future reference and they practice skills systematically with the intention of perfecting them.

Third, note that motivation to learn applies not only to performance (work on tests or assignments), but also to the information-processing activities (attending to lessons, reading for understanding, comprehending instructions, putting things into one's own words) that are involved in learning content or skills in the first place. Thus, the strategies in this manual emphasize

stimulating students to use thoughtful and effective information-processing and skill-building strategies when learning. This is different from merely offering incentives for good performance.

Finally, note that our emphasis is on stimulating students to attempt to get the intended academic benefits from classroom activities, rather than stimulating them to compete with their peers or concentrate on particular grades or scores. Various social motives (achieve success or recognition, win praise or prizes) have their place in the classroom, but they apply more to performance situations than to learning situations, and they may actually interfere with learning efficiency if there is too much emphasis on them. Ideally, students will engage in lessons and assignments with attention on the content to be learned and the demands of the task, without being distracted by concern about success or failure, grades, peer comparisons, or other social issues.

Assumptions and Preconditions

Before getting to the motivational strategies themselves, we need to mention several assumptions and preconditions that underlie their effective use. The strategies cannot work effectively if these assumptions and preconditions are not in effect.

1. Supportive environment. Anxious or alienated students are unlikely to develop motivation to learn academic content. Nor is such motivation likely to develop in a chaotic classroom. Thus, we assume that (a) the teacher uses classroom organization and management skills that successfully establish the classroom as an effective learning environment; and (b) the teacher is a patient, encouraging person who makes students feel comfortable during academic activities and supports their learning efforts. The classroom atmosphere is businesslike but relaxed and supportive. Students feel comfortable taking intellectual risks because they know that they will not be embarrassed or criticized if they make a mistake.

2. Appropriate level of challenge/difficulty. We assume that activities are of an appropriate difficulty level for the students. If the task is so familiar or easy that it constitutes nothing more than busy work, and especially if the task is so unfamiliar or difficult that the students cannot succeed on it even if they apply reasonable effort, no strategies for inducing student motivation to learn are likely to succeed. Task are of appropriate difficulty level when the students are clear enough about what to do and how to do it so that they can achieve high levels of success if they apply reasonable effort. When students encounter such tasks routinely, they will expect to succeed at them and thus will be able to concentrate on learning the tasks without becoming anxious or worrying about failure.

The simplest way to ensure that students expect success is to make sure that they achieve it consistently. Program your students for success by beginning at their level, moving in small steps, and preparing them sufficiently for each new step so that they can adjust to it without much confusion or frustration.

Some students may need help in recognizing that they can succeed if they apply reasonable effort. Such students may not see the relationship between

the degree of effort they put into their work and the degree of success they achieve. They may even believe that they lack the necessary knowledge or ability to succeed consistently, and may attribute the success they do achieve to chance factors (lucky guessing, easy assignments, etc.). Such students need to be (a) reassured that they will be given work of appropriate difficulty level; (b) encouraged to attribute their successes to the combination of sufficient ability with reasonable effort; and (c) encouraged to attribute their failures to insufficient effort (if this is the case) or to confusion or reliance on inappropriate strategies (which can be overcome with additional teaching and practice).

3. Meaningful learning objectives. We cannot expect students to develop motivation to learn if activities are essentially pointless in the first place. Therefore, we assume that activities have been selected with worthwhile academic objectives in mind. That is, they teach some knowledge or skill that is worth learning, either in its own right or as a step toward some larger objective. This would exclude the following activities: continued practice on skills already mastered thoroughly; memorizing lists for no particularly good reason; reading about something that is so foreign to one's experience or is described in such technical or abstract language that it is essentially meaningless; looking up and copying definitions of terms that are never used meaningfully in readings or assignments; and working on tasks assigned merely to fill time rather than to attain some worthwhile instructional objective.

You may end up violating this assumption frequently if you confine your instruction to what is stated in the text. Some passages in the text are so sketchy that, unless you elaborate the material for your students, they will have no alternative but to memorize names, dates, definitions, locations, and other facts without developing much real understanding of what they are reading about. For example, a lesson on how Russia became the U.S.S.R. states that "a revolt threatened," "the revolution came," "the republic formed," and "Lenin gave the people peace and food," but it never explains any of these things in concrete terms that the students can visualize and understand. They might memorize it and even learn to answer questions about it (Why did Russia exit the war? Answer: Because the revolution came) and yet not really understand what they are talking about. Thus, when the text is this sketchy, your most effective motivational strategy probably will be to elaborate on the text and thus make it more meaningful to the students. Remember, if you want your students to learn with understanding instead of just memorizing, you will need to elaborate on abstract or sketchy content. If the material is too abstract, supply analogies to more familiar content or examples of concrete instances. If the material is too sketchy, supply more details so that your students can develop visual images of what happened and an understanding of how and why it happened.

4. Moderation/optimal use. We assume that there is an optimal level for effective use of each motivational strategy. Strategies used too often or too routinely may lose their effectiveness, and any particular use of a strategy can become counterproductive if it goes on too long or gets carried to extremes.

Also, different activities will call for different numbers and kinds of motivational strategies. Where content is relatively unfamiliar and its value

or meaningfulness to the students is not obvious, significant motivational effort involving several of the strategies described in this manual may be called for. In contrast, little or no special motivational effort may be needed when the task involves something that the students are already eager to learn.

A. Strategies for Inducing Motivation to Learn

If the foregoing assumptions and preconditions are in effect, the stage will be set for inducing student motivation to learn. The 13 strategies described in this section are the strategies most directly involved in stimulating student motivation to learn (or in activating it where it already exists). Therefore, these are the strategies that should be used each day throughout the semester in your experimental section. The first three general strategies should be pervasive features of the learning environment that you establish in that section, and one or more (preferably several) of ten specific strategies should be included when introducing and implementing each classroom activity and follow up assignment used in that section. These are strategies for orienting students toward learning the content or mastering the skills that a task offers.

1. General Modeling

Throughout all of your interactions with your students, routinely model interest in learning: Let the students see that you value learning as a rewarding, self-actualizing activity that produces personal satisfaction and enriches your life. Share your interests in current events and items of general knowledge, and most especially, in aspects of the subject matter that you teach. Call attention to current books, articles, television programs, or movies on the subject. Also, call attention to examples or applications of social studies knowledge in everyday living, in the local environment, or in current events.

By "modeling," we mean more than just calling students' attention to examples or applications of social studies concepts. We mean acting as a model--sharing your thinking about such examples or applications so that your students can see how educated people use social studies information and concepts to understand and respond to everyday experiences in their lives and to news about current events elsewhere. Share your thoughts about these matters with your students: Connections between concepts that you have been studying and events in your lives or in the news, insights or opinions about current events, questions that you are raising or predictions that you are making about how some current crisis will be resolved. Let the students see how it is both stimulating and satisfying to understand (or even just to think or wonder about) what is happening in the world around us.

2. Communicate Desirable Expectations and Attributions

Throughout all of your interactions with students, routinely project attitudes, beliefs, expectations, and attributions (statements about the reasons for students' behavior) that imply that your students share your own enthusiasm for learning. To the extent that you treat your students as if they already are eager learners, they will be more likely to become eager learners. Let them know that you expect them to be curious, to want to learn facts and understand principles clearly, to master skills, and to see their learning as meaningful and applicable to their everyday lives.

At minimum, this means avoiding suggestions that students will dislike working on academic activities or will work on them only in order to get good grades. Preferably, it also means treating students as active, motivated learners who care about their learning and are trying to understand.

3. Structure Activities as Learning Experiences, Not Tests

Make clear separations between instruction or practice activities and tests. Where instruction or practice activities include test-like items (recitation questions, practice exercises), treat these as opportunities for the students to work with and apply the material rather than as opportunities for the teacher to see who knows the material and who does not. If we expect students to engage in academic activities with motivation to learn (which implies a willingness to take risks and make mistakes), we will need to protect them from anxiety or premature concern about performance adequacy.

It is necessary, of course, to evaluate student performance and assign grades using tests or other assessment devices. Until that point in the unit, however, the emphasis should be on teaching and learning rather than on performance evaluation, and students should be encouraged to respond to questions and performance demands in terms of "Let's assess our progress and learn from our mistakes" rather than "Let's see who knows it and who doesn't." When possible, give students opportunities to correct their mistakes or improve their responses by rephrasing the question or giving a clue (i.e., don't just give the answer or move on to someone else). If it is necessary to give the answer or elicit it from another student, be sure to include any explanation that may be needed to see that the first student "gets the point" and understands why the answer is correct. Have students correct their mistakes on seatwork and homework assignments as well. In general, encourage your students to treat each question and performance demand as an opportunity to check on their own understanding or apply what they are learning, and not merely as an opportunity to gain or lose points toward their grades.

These first three strategies are general ones that should pervade all classroom activities and teacher-student interactions. They involve socializing students to understand that the classroom is primarily a place for learning and that acquiring and applying knowledge and skills are important contributors to quality of life. The remaining strategies involve more specific words and actions to be used in introducing and implementing classroom activities and assignments.

4. Teacher Enthusiasm

Unless they are already quite familiar with a topic or assignment, students will look to the teacher for cues about how to respond. Consciously or not, the teacher will be modeling attitudes and beliefs about the topic or assignment, and students will pick up on these cues. If the teacher presents the topic or assignment with enthusiasm suggesting that it is interesting, important, or worthwhile, the students are likely to adopt this same attitude.

In calling for enthusiasm, we do not mean pep talks or unnecessary theatrics. Instead, we mean that the teacher identifies his or her own reasons for being interested in the topic or finding it meaningful or important, and projects these reasons to the students. Use dramatics or forceful salesmanship if you are comfortable with these techniques and they fit your teaching style, but if not, a low-key but sincere statement of the value that you place on the

topic or activity will do just as well. Remember, the primary objective of teacher enthusiasm as a strategy for motivating students to learn is not to amuse, entertain, or excite the students, but to induce them to value the topic or activity.

5. Induce Task Interest or Appreciation

When introducing a task or activity, induce the students to value it by sharing your perceptions about how interesting or informative it is or how important the skills that it teaches are. Mention applications of the knowledge or skills to everyday living, especially applications that will allow students to solve problems or accomplish goals that are important to them. Mention new or challenging aspects that the students can anticipate, especially interesting or exotic ones.

6. Induce Curiosity or Suspense

Stimulate curiosity or suspense by posing questions or doing "set ups" that make the students feel the need to resolve some ambiguity or obtain more information about the topic. Ask them to speculate or make predictions about what they will be learning. Raise questions that successful completion of the activity will enable them to answer. Where relevant, show them that their existing knowledge is not complete enough to enable them to accomplish some valued objective, that their knowledge is internally inconsistent or inconsistent with certain new information, or that the knowledge they presently possess in scattered form can be organized around certain general principles or powerful ideas. In general, put the students into an active information-processing or problem-solving mode by posing interesting questions or problems that the activity will address.

7. Make Abstract Content More Personal, Concrete, or Familiar

Definitions, principles, and other general or abstract input may have little meaning for students unless made more concrete and specific. Promote personal identification with the content by relating experiences or telling anecdotes illustrating how the content applies to the lives of particular individuals (especially individuals whom the students are interested in and likely to identify with). Make abstractions concrete by showing objects or pictures and by conducting demonstrations. Help students relate new or strange content to their existing knowledge by using examples or analogies referring to familiar concepts, objects, or events.

Sometimes the problem is not that the content is too abstract or unfamiliar for students to understand if it were explained sufficiently, but that there just is not enough explanation. For example, it is not enough to say that Russia exited World War I because "the revolution came and a new government took over." This brief staement does not supply enough details to enable students to visualize and understand the events surrounding the Russian revolution. To make the material understandable to your students, you would have to elaborate on it by explaining why and (especially) how the communists and others organized political and eventually military resistance to the Czar's regime, killed or expelled the Czar's family and key officials, and established a new government. With the benefit of such elaboration, the statement that "the revolution came and a new government was established" is transformed from a relatively meaningless statement that can only be memorized into a meaningful

statement that students can explain in their own words because they can relate it to their prior knowledge and can visualize the events to which it refers.

8. Induce Dissonance or Cognitive Conflict

In the case of familiar topics about which students may tend to think they already know everything there is to know, counter this tendency by pointing out unexpected, incongruous, or paradoxical aspects. Call attention to unusual or exotic elements of the content to be learned, note exceptions to general rules, or challenge the students to solve the "mystery" that underlies a paradox. Get the students to ask themselves "How can that be?" about strange but true phenomena.

9. Induce the Students to Generate their Own Motivation to Learn

Besides stimulating motivation to learn in the students by using other strategies, it is possible to induce students to generate such motivation to learn for themselves. Ask them to think about the topic in relation to their own interests and preconceptions. Ask them to identify questions that they would like to get answered, to list their particular interests in the topic, or to note things that they find to be surprising. Besides generating motivation to learn for particular topics, such exercises are useful for helping students to understand that motivation to learn must come from within themselves--that it is a property of the learner rather than the task to be learned.

10. State Learning Objectives and Provide Advance Organizers

When introducing a task, call the students' attention to the nature of the task and the academic benefits that they should receive from engaging in it. This will help them to establish a learning set to guide their response to the task. In order to be concrete and specific, and in order to provide the students with guidelines for goal setting and self-assessment, phrase objectives in terms of what the students should be able to do when they complete the task successfully rather than merely in general terms describing what the task is about. Statements of learning objectives are especially important for skill development tasks (in contrast to knowledge development tasks).

11. Provide Informative Feedback

Give students feedback about their progress in understanding content or mastering skills. Where such feedback does not occur automatically in the process of engaging in a task, supply it by monitoring and correcting performance, providing answer keys, allowing students to give feedback to one another, or some other method.

Ideally, feedback should occur during or as soon as possible following the performance, so that students do not develop and "practice" erroneous concepts or strategies. Feedback should be clear, specific, and constructive. It should include recognition of progress made or partial successes achieved and should be presented in ways that encourage and provide guidance for continued learning efforts.

If difficulties are attributed to causes, such difficulties should be attributed not to lack of sufficient ability on the part of the student but to lack of effort (if this is clearly the case) or (more likely) to confusion about what to do or reliance on an ineffective strategy for doing it. Most such feedback should be private rather than public and focused on learning what is being taught rather than on the student as a person.

12. Model Task-Related Thinking and Problem Solving

The information-processing and problem-solving strategies that you use when thinking about social studies content and responding to social studies tasks will be invisible to your students unless you make them overt and observable by modeling them. Therefore, when teaching particular content, and especially when demonstrating skills or problem solving strategies, don't just tell the students what to do using the typical second- or third-person language of instruction. In addition, model the process by showing the students what to do and thinking out loud as you demonstrate. Include the thinking that goes into selecting the general approach to use, deciding on options to take at choice points, checking progress as you go along, and satisfying yourself that you are on the right track. On occasion, model recovery from false starts and from use of inappropriate strategies on occasion as well, so that students can see how one can develop a successful strategy even when one is not sure about what to do at first.

This kind of cognitive modeling (thinking out loud so that students can observe one's information-processing and problem-solving strategies) is powerful not only as an instructional device but as a way to socialize student motivation to learn. In addition to modeling the particular strategies needed for the task at hand, it is a way to show students what it means to approach a task with motivation to learn, and to model some of the general beliefs and attitudes associated with such motivation (patience, confidence, persistence in seeking solutions through information processing and rational decision making, benefiting from the information supplied by mistakes rather than simply giving up).

13. Induce Metacognitive Awareness of Learning Efforts

When opportunities arise, train your students to be aware of their goals during task engagement, to monitor the strategies they use in pursuing these goals, to note the effects of these strategies as they are used, and to monitor their own responses to these events as they unfold. In particular, train the students to respond to errors as cues for analysis and concentrated efforts, rather than as cues for becoming frustrated and giving up.

When motivated to learn, students do not merely let input "wash over them" and hope that some of it will stick. Instead, they process the input actively by concentrating their attention, making sure that they understand, integrating new information with existing knowledge, and encoding and storing this information in a form that will allow them to remember and use it later. The mere intention to learn in this fashion is not sufficient to ensure such learning. In addition, students must possess and use cognitive and metacognitive skills for learning and studying effectively. Some of these are specific to particular subject matter or types of tasks, but some are general strategies that students will find useful for almost any kind of learning or studying.

a. Actively preparing to learn. Teach your students to prepare to learn actively by mobilizing their resources and approaching tasks in thoughtful ways: getting mentally prepared to concentrate on the task; previewing reading or listening tasks by noting their nature and objective; developing a plan before trying to respond to complex performance tasks.

b. Committing material to memory. Repeating, copying, or underlining key words; making notes; using imagery or other mnemonic strategies.

c. Encoding or elaborating on the information presented. Usually it will not be appropriate (or even possible) to rely on rote memory to retain information verbatim, so students will need to be taught strategies for learning the gist of the material: paraphrasing and summarizing information to put it into their own words; relating it to what they already know; and assessing their understanding by asking themselves questions about the material to see if they can answer them knowledgeably.

d. Organizing and structuring the content. It is helpful to identify or impose organizational schemes that structure the content by dividing it into sequences or superordinate-subordinate clusters: Noting the main ideas of paragraphs, outlining the material, and noting whole-part, rule-example, question-answer, and generalization-elaboration structures. Help your students to see that they can use these structural elements as bases for organizing and remembering what they learn.

e. Monitoring comprehension. Teach your students to remain aware of the instructional objectives, the strategies they are using to pursue them, the relative success of those strategies, and the remediation efforts they undertake if the strategies have not been effective. Teach strategies for coping with confusion and errors: backing up and rereading, looking up definitions, identifying previous places in the text where the confusing point is discussed, searching the recent progression of topics for clues to the information that has been missed or misunderstood, retracing steps to see if the strategy has been applied correctly, generating possible alternative strategies.

f. Maintaining appropriate affect. Model and instruct students in ways of approaching academic activities with desirable affect (relaxed but alert and prepared to concentrate, ready to enjoy or at least take satisfaction from engaging in the task) but not undesirable affect (anger, anxiety, etc.). Model self-reinforcement for success and coping skills for responding to frustration and failure (reassuring self-talk, refocusing of attention on the task at hand, using the strategies listed at the end of the previous paragraph).

B. Task Design and Selection Strategies

We noted previously that motivation to learn resides in the student rather than in the task to be learned and that it should be possible to stimulate students to be motivated to learn any worthwile task, whether or not they find the task enjoyable. It is for these reasons that we have differentiated motivation to learn a task from liking for the task and have identified the strategies

described above in Section A as the strategies involved most directly in socializing students' motivation to learn.

Nevertheless, given tasks that are equally appropriate from a curriculum and instruction point of view, we prefer that students work on tasks that they find interesting and enjoyable rather than tasks that they find boring or irritating. This is the goal of the strategies in Section B. These strategies involve capitalizing on students' existing intrinsic motivation by selecting or designing tasks that they will find attractive or enjoyable. Although these strategies will not directly stimulate student motivation to learn, they should produce heightened task engagement sustained by the fact that students enjoy the actual processes involved in doing the task.

14. Adapt Tasks to Students' Interests

Whenever a variety of activities could be used to accomplish particular curriculum objectives, take advantage of students' existing interests by designing or selecting activities that match those interests--activities that the students enjoy or that deal with topics that the students find interesting or important. Task enjoyment also will be affected by Strategies 15-24.

15. Choice

Within the constraints imposed by your instructional objectives, offer your students choices of alternative tasks or alternative ways to meet requirements. If the students might make undesirable choices if left completely on their own, provide them with a menu of choices to select from or require them to get your approval of their choice before going ahead with it.

16. Novelty/Variety

Students faced with the same routine and the same type of task each day will soon become bored. Therefore, try to be sure that something about each task (its form, its content, the media involved, or the nature of the responses it demands) is new to the students or at least different from what they have been working on recently. Remember, a steady diet of routine and predictable lessons followed by routine and predictable assignments soon becomes "the daily grind."

17. Autonomy

Although sometimes "there is only one right way" to do a task, most tasks can be designed to allow for some autonomous decision making and creativity by students. Most students feel unduly pressured if they perceive that every move they make is being prescribed and monitored by the teacher. In contrast, they are likely to experience heightened intrinsic motivation and commitment to the task when they perceive that they will have opportunities to exercise autonomy and creativity in deciding how to organize their time and effort in order to meet task requirements.

18. Activity/Manipulation Opportunities

Students tend to prefer activities that allow them to interact with the teacher or with one another, to manipulate materials, or in some other way to respond actively rather than merely to listen or read. Ideally, these opportunities will often go beyond the simple question-answer formats seen in typical recitation and seatwork activities in order to include projects, experiments, discussions, role play, simulation, and creative applications.

Even within traditional recitation and discussion formats, teachers can create more active student involvement by going beyond factual questions to stimulate students to discuss or debate issues, offer opinions about cause and effect relationships, speculate about hypothetical situations, or think creatively about problems. In this way, students are led to think actively about the content instead of just memorizing facts and concepts.

19. Feedback Features

Students tend to enjoy tasks that allow them to make responses and get immediate feedback better than tasks that do not allow for active response or that allow active response but do not provide immediate feedback that can be used to guide subsequent responses. Therefore, tasks designed to allow students to make active responses that will trigger immediate feedback are especially desirable.

So-called "self-correcting" materials have such feedback features built in. Teachers can build them into more typical classroom activities by leading the group in going through the task, circulating to provide feedback during independent seatwork times, or arranging for students to get feedback from answer keys or from discussing the work with one another. Also, teachers can break up otherwise lengthy lectures or presentations by interspersing recitation and discussion activities or follow-up assignments that allow students to make responses and get feedback.

20. Creation of Finished Products

Industrial workers enjoy jobs that allow them to create a product they can point to and identify with more than jobs that do not result in finished products providing tangible evidence of the fruits of their labor. Students are likely to respond similarly to academic tasks; that is, they are likely to prefer tasks that have meaning or integrity in their own right over tasks that are mere subparts of some larger entity, and they are likely to experience a satisfying sense of completion or accomplishment when they finish such tasks. Ideally, task completion will yield a finished product that the student can use or display.

21. Fantasy/Simulation Features

Where more direct application is not feasible, teachers can introduce fantasy or imagination elements that will engage students' emotions or allow them to experience events vicariously. Or, they can set up role play or simulation activities that allow students to identify with various characters or to deal with the content in direct, personalized ways. Ideally, such fantasy/simulation activities will confront students with problems they need to solve by drawing on the knowledge and skills they have been learning.

Simulation exercises include, but are not confined to, full-scale drama, role play, simulation games, or other "major productions." Other simulation exercises are more modest and can be incorporated into more typical everyday instruction. These include brief simulation exercises or invitations for students to bring fantasy or imagination to bear in thinking about the content. In lessons on the U.S.S.R., for example, while leading the group in reading through and discussing the text you might ask the students to imagine and talk about what it would be like to seek housing in a country where the government owned all of the property or to get accurate information about current world

events in a country where all of the media are controlled by the government. These brief fantasy/simulation exercises do not take much time or require special preparations, but they can be quite useful in stimulating your students to relate to the content more personally and to take a greater interest in it.

22. Game-like Features

Practice and application activities for almost any kind of content can be presented as games or structured to include features typically associated with games or recreational pastimes: "test yourself" challenges, puzzles and other problem-solving activities, and the like. Some of these activities involve clear goals but require the student to solve problems, avoid traps, or overcome obstacles in order to reach these goals. Others challenge students to "find the problem" (i.e., to identify the goal itself, in addition to developing a method of reaching the goal). Others involve elements of suspense or hidden information that emerges as the activity is completed (puzzles that convey some message or provide the answer to some question once they are filled in). Still others involve a degree of randomness or some other method of inducing uncertainty about what the outcome of one's performance is likely to be on any given trial. Ideally, such game-like elements will complement, and not detract from, the academic benefits of the activity.

23. Higher Level Objectives/Divergent Questions

It is important that students learn basic social studies facts, concepts, and definitions. However, a steady diet of activities that concentrate on these lower level knowledge and comprehension objectives soon becomes boring for most students. Therefore, there should be frequent activities or parts of activities devoted to higher level objectives (application, analysis, synthesis, or evaluation). Also, in addition to convergent questions designed to elicit a particular correct answer, there should be questions designed to elicit opinions, predictions, suggested courses of action or problem solutions, or other divergent thinking. Such questions and activities allow students to respond more actively and creatively to the content than do activities built around convergent questions about facts, definitions, or concepts.

Exposure to higher level objectives/divergent questions also helps make the material more meaningful and understandable to the students. If they are only exposed to facts without much explanation or integration, and if questions and assignments only require them to regurgitate these facts, students won't have much opportunity (let alone motivation) to make sense of the material by processing it actively, putting it into their own words, and relating it to their prior knowledge and experience. Therefore, this strategy is especially useful when the text provides only vague or sketchy coverage of the topic and orients the students more toward rote memorizing than toward learning with understanding.

24. Opportunities to Interact with Peers

Many students particularly enjoy activities that allow them to interact with peers. Teachers can build peer interaction into whole-class activities such as discussions, debates, role play, or simulation. Peer-oriented students are likely to find such activities more enjoyable than whole-class activities that allow them to interact only with the teacher. In addition, however, teachers can include activities that allow students to work together in pairs or

small groups to tutor one another, discuss issues, develop suggested solutions to problems, or work as a team participating in simulation games or producing some group product (a report, display, etc.)..

In addition to being more enjoyable because of the social aspect, such peer interactive activities may carry useful instructional and motivational benefits if the following conditions are met: (a) The activities are sufficiently structured around academic objectives to make them worthwhile learning experiences and not merely occasions for socializing; and (b) conditions are arranged so that everyone participates actively and has a substantive role to play in carrying out the group's activity (rather than having one or two students dominate the interaction or do all the work while others just watch).

PLANNING YOUR MOTIVATIONAL STRATEGIES

Consider the following questions when planning to incorporate strategies for stimulating student motivation to learn into your classroom activities.

I. For All Activities

Objectives. In terms of social studies curriculum and instruction, what are the goals of this activity? How do these translate into specific objectives for the students? (What will the students be able to do when they complete the activity? Why are they learning this information or skill? When and how would they use it?). Convey this information to the students through the learning objectives that you state when introducing the activity to them.

Advance organizers. Before getting into the task itself, how can you characterize it for the students using familiar general terms that indicate the nature of the task and provide the students with organizing concepts that subsume the more specific information to be presented? Such advance organizers should be communicated to the students (typically right before mention of the learning objectives of the activity).

Induce interest/appreciation/curiosity/suspense/dissonance. Does the activity produce information that the students are likely to find especially interesting or build skills that they are eager to develop? Does it contain unusual or surprising input? Can the content be related to current events or events in the students' lives? Are there interesting comparisons between the culture or geography of the country being studied and the culture or geography of Michigan or the United States (or between events during the historical period under study and current events)? Are there ways to create dissonance by telling students about something surprising that they will be learning through this activity and inviting them to speculate about how it could be true? Are there ways to stimulate curiosity or create suspense by posing interesting questions? Where the answer to one or more of these questions is "yes," capitalize on the opportunity to induce student motivation to learn by creating interest, appreciation, curiosity, suspense, or dissonance when introducing the activity.

II. For Listening and Reading Activities

Consider the following questions when planning activities that require students to attend to an oral presentation, watch a visual presentation, or learn by reading.

A. Teacher Preparation

Consider the following questions when planning lectures/presentations that you will make to the class.

Enthusiasm. What is your personal response to the content? What do you find interesting or noteworthy about it? What aspects are particularly important, and why? Your answers to these questions represent your own enthusiasm toward the subject and should be communicated to the students during your presentation.

Personalization. Are there personal experiences you can tell about or artifacts that you can display that are related to the content? Are you aware of content-related anecdotes about the experiences of others or about how the knowledge was discovered? Including these personalized aspects should spice up the presentation.

Variety and cognitive level. Does the content of your presentation contain sufficient variety in cognitive level of information communicated and response demanded? Ordinarily, the presentation should not be confined to facts and terms for students to memorize. It should include attention to skills or applications as well as analysis, synthesis, or evaluation of the material.

Provision for active response. What is the anticipated length of the presentation? If it appears that there will be too much uninterrupted lecture, break up the presentation by planning to ask questions, initiate discussion, or allow time for students to take notes or respond to a study guide or brief assignment. This will provide you with feedback on the students' understanding of your presentation, as well as provide the students with opportunities to respond more actively.

B. Student Preparation

Consider the following questions in planning to prepare students for activities in which they will be expected to learn by attending to your presentation, viewing a film or other audiovisual presentation, or reading text.

Directed listening and reading. How should the students respond to the presentation or text? Should they take notes or underline key ideas? Should they keep particular issues or questions in mind as they listen or read? Is there some key point that they might easily miss if not forewarned? Should they be given a set of questions, a partially filled in outline, or a study guide to respond to while listening or reading? Your answers to these questions will determine how you want to structure your students' response to the

presentation or text. To the extent that you want them to do something more specific than just pay attention and try to get the most they can out of the experience, tell them specifically what you want them to do, and if necessary, help by supplying questions, outlines, or study guides.

Text structures. Are there particular organizational structures that the students can recognize and use in learning from the presentation or text (lists, generalizations followed by elaborations, compare/contrast structures, historical narratives and other descriptions of sequential events, description of wholes followed by descriptions of each of the parts, presentation of rules followed by examples, questions followed by answers, and concept definitions followed by examples and nonexamples of the concept)? Students are more likely to follow and remember a presentation or text successfully if they are made aware of its organizational structures.

Problem prevention. Does the presentation or text contain abstractions that won't be meaningful to the students without additional explanation or concrete examples? Are there technical or unfamiliar terms that need explanation? Are there particular concepts that the students are likely to have trouble with because they are very subtle or difficult, because they are not well explained in the text, or because they conflict with students' personal experiences or expectations? If so, you may want to adjust your presentation to allow for extra attention to these trouble spots, or to prepare students for film watching or text reading by making sure that they have the prerequisite knowledge they will need to get the intended benefit from the film or text.

III. For Activities Requiring Active Response

Consider the following questions when planning activities or assignments that require the students to do something more active than listen or read (answer questions, prepare a report, work on a project, etc.).

A learning experience, not a test. Present the activity as an opportunity to apply knowledge or develop skill, rather than as a test (unless it is a test). Treat the activity as a tool for learning (a means toward the end of knowledge or skill building, rather than an end in itself), an experience designed to assist the students in their efforts to master the curriculum. Encourage the students to ask questions and seek whatever information or help they may need to clear up confusion and perform acceptably.

Modeling. If necessary, model the process of responding to the activity for the students. Work through several examples by thinking out loud as you perform each step, explaining any information gathering or decision making that is involved and including explanation of the rationales for actions in addition to demonstrating the actions themselves. In addition to modeling ideal performance (making all the right decisions and moving through the task smoothly), model hypothesis-testing strategies (considering two or more alternatives at a choice point and selecting the correct one after reasoning or brief experimentation) and troubleshooting/repair strategies (discovering that you have selected an inappropriate strategy or made some other mistake and using

rechecking and logical reasoning approaches to identify and correct the problem). In general, to the extent that the successful performance depends on effective planning, thinking, decision making, or covert problem solving, make sure that you model these mental processes for the students in addition to demonstrating the more overt responses.

Feedback. When, how, and from whom will the students get feedback on their performance? What should they do if they do not understand a question or are not sure about how to begin a response? What should they do when they think they are finished? Try to plan the activities so that the students can get the feedback they need when they need it.

Metacognitive awareness. To get the most out of a practice exercise or application opportunity, students not only need to perform correctly but also need to monitor and perfect the strategies they use to produce such performance. What can you do to ensure that the students will monitor and correct their strategies? Good modeling is probably the most important factor here. In addition, though, it is helpful to remind students to pay attention to the strategies they use for understanding and responding to the task (when giving your initial instructions), as well as to ask questions about these strategies (when providing help or giving feedback). It also is helpful if your instructions and feedback reinforce what you have said to the students about the learning objectives of the activity (to help the students keep in mind that the point of the activity is to help them understand or apply knowledge or skill and not merely to produce correct responses to a particular set of questions).

IV. Task Adaptation and Substitution

The previous questions focus on Strategies 1-13 concerning inducing motivation to learn particular tasks. They can be used with any worthwhile tasks, whether or not students are likely to find the task enjoyable. However, some tasks (including many of those that come with published curricula) are not worthwhile, either because they focus on knowledge or skills that are not worth learning or because they are ambiguous, confusing, or otherwise poorly designed. Also, many tasks that are adequately designed from a curriculum and instruction point of view are not very desirable from a motivation point of view because they tend to be boring (especially if they occur frequently).

Where such problems are known or suspected to exist, you may wish to consider changing the task. Given Strategies 14-24 concerning task design and selection, and given the academic objectives to be accomplished, can you see ways to adapt the present task or substitute a different task so that the students can accomplish the academic objectives in a more interesting or intrinsically motivating way? Almost any of Strategies 14-24 can be applied in adapting almost any task, although the strategies of adapting tasks to students interests (14), providing activity/manipulation opportunities (18) and feedback strategies (19), adding fantasy/simulation features (21), and including higher level objectives or divergent questions (23) tend to be the easiest to assimilate into existing tasks. These strategies also are the ones most likely to lead to student motivation to learn (among Strategies 14-24).

Application of Strategies 14-24 should increase your students' enjoyment of classroom activities and assignments, and this is a desirable objective as

far as it goes. However, bear in mind that Strategies 14-24 do not directly stimulate student motivation to learn, so that Strategies 1-13 will be needed even for tasks that students find highly enjoyable.

RECORDING YOUR PLANS

Information about the motivational strategies planned for use in the experimental section each day will be recorded on special forms (see examples on next two pages). These forms allow for automatic production of a copy of the plans. Keep one copy for your own use, and give the other copy to the observer. Observers should receive plans approximately one week in advance of scheduled activities.

The plans recorded on these forms are not lesson plans or content outlines. Instead, they are brief statements explaining how the plans for the control section (that will be taught in the usual way) have been changed so as to incorporate one or more of the 24 motivational strategies described in the manual.

Start a new page for each day, recording the date and circling the day of the week. Begin by recording needed information for the first activity planned. When the plans for this first activity have been recorded, draw a line across the page and then record the plans for the second activity. Continue in this manner, drawing lines across the page following each planned activity, until the plans for all of the activities scheduled for that day have been recorded. Use continuation sheets if necessary.

Begin recording by using the left side of the page to describe the activity planned for the control section. Then, on the right side of the page, describe what will be done in addition or instead in the experimental section.

On the right side of the page, list each extra or different thing that you plan to do in the experimental section in the order in which you plan to do it. Thus, things you will say or do when introducing the activity will be mentioned first, followed by things to be said or done during the activity itself. For each activity, number these planned motivational components consecutively, and begin each on a new line.

Following the description of each numbered motivational component, list in parentheses the number or numbers (1-24) of the strategy or strategies that the planned motivational component represents.

The examples on the following pages illustrate how two different teachers might have planned and recorded their "extra" motivational strategies for a lesson on how Russia became the U.S.S.R.

STUDENT MOTIVATION STUDY: TEACHER PLANNING RECORD

Teacher JANE DOE Week of Nov. 14-18 Day: M (T) W Th F

Control Section	Experimental Section
Read and discuss the lesson "How Russia became the U.S.S.R." Refer to maps to illustrate borders before and after the two world wars.	1. Before reading begins, ask the class what they know about the "Iron Curtain" —what is it, can you see it or touch it, etc. (18). 2. Elaborate on text re Hitler and his decision to attack Russia, describe losses on both sides on the Russian front (7).
Seatwork assignment: Answer questions in text on pages 305-306.	1. For the fill-in-the-blanks questions on page 305, substitute a crossword puzzle (on the same material). (16, 22)

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STUDENT MOTIVATION STUDY: TEACHER PLANNING RECORD

Teacher JOHN SMITH Week of Nov. 14-18 Day: M (T) W Th F

Control Section	Experimental Section
Introduction to material in text on how Russia became the U.S.S.R. Lecture on Russian people and cultures, life in Russia before the revolution, Russia's terrible war losses and general suffering.	1. Show picture of Rasputin and tell about his colorful life and death (7). 2. While doing so, note examples of the excesses that the Russian people eventually rebelled against (7).
Read and discuss "How Russia became the U.S.S.R." in the text.	1. Induce curiosity by telling the class that the lesson will explain how we (the U.S. acquired Alaska, and that the answer is surprising (6). 2. Elaborate on the text in places where it is vague--tell how Peter the Great brought Western craftsmen to Russia, how the revolution came, and how Lenin took over and changed things (7).
Seatwork assignment: Answer the questions in the text (on the material just read and discussed).	1. Remind the students that the assignment is meant to help them to check on their understanding of the material, so that they should reread and make sure that they understand whenever they are not sure of an answer (10, 13).

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Appendix B

Student Motivation Questionnaire

Student Questionnaire I Date ____/ /____ Name _____

Teacher _____ Period _____

Sample Questions

	Really true for me	Sort of true for me			Sort of true for me	Really true for me
A.	☐	☐	Some kids would rather play outdoors in their spare time	BUT Other kids would rather watch TV.	☐	☐
B.	☐	☐	Some kids like hamburgers better than hot dogs	BUT Other kids like hot dogs better than hamburgers.	☐	☐

1.	☐	☐	Some kids are interested in learning about news of other countries from the newspapers or TV	BUT Other kids find news about other countries boring	☐	☐
2.	☐	☐	Some kids want to be sure that they learn what they are supposed to learn from social studies assignments	BUT Other kids are satisfied if they have enough right answers to insure an acceptable grade.	☐	☐
3.	☐	☐	Some kids look forward to coming to social studies class	BUT Other kids don't enjoy social studies class.	☐	☐
4.	☐	☐	When some kids get an answer wrong on a social studies assignment, they try to figure out why they missed it	BUT Other kids try to forget about missing the answer	☐	☐
5.	☐	☐	Some kids think it's important to learn things in social studies because they will need the information in the future	BUT Other kids don't think they will ever use what they learn in social studies.	☐	☐
6.	☐	☐	Some kids get started early and give themselves plenty of time to finish a social studies assignment	BUT Other kids wait and then do the work at the last minute.	☐	☐

	Really true for me	Sort of true for me			Sort of true for me	Really true for me
7.	☐	☐	Some kids look up the right answers to items that they missed on social studies tests or assignments	BUT Other kids don't bother about it.	☐	☐
8.	☐	☐	Some kids preview a social studies reading assignment before starting to read	BUT Other kids jump right into it and start reading.	☐	☐
9.	☐	☐	Some kids keep working for as long as it takes to understand something	BUT Other kids give up easily if the work is long or hard.	☐	☐
10.	☐	☐	Some kids read over, check, and revise a social studies assignment before turning it in	BUT Other kids turn it in just as it was when they finished it.	☐	☐
11.	☐	☐	Some kids make sure that they understand what they are supposed to be learning even if they are not interested in the topic	BUT Other kids concentrate mostly on the material that interests them and skip lightly over the rest.	☐	☐
12.	☐	☐	Some kids think that what we are learning in social studies is interesting	BUT Other kids think that what we are learning in social studies is boring.	☐	☐
13.	☐	☐	Some kids see social studies assignments as chances to apply what they are learning	BUT Other kids see social studies assignments as chances for the teacher to test knowledge and assign grades.	☐	☐
14.	☐	☐	Some kids begin studying for a social studies test several days in advance	BUT Other kids wait until the night before the test.	☐	☐
15.	☐	☐	Some kids try to memorize what it says in the social studies text	BUT Other kids try to put it into their own words.	☐	☐
16.	☐	☐	Some kids think that what we are learning in social studies is useful information	BUT Other kids think that we will never use this information.	☐	☐
17.	☐	☐	Some kids take their time with social studies assignments and try to get the most out of them.	BUT Other kids want to get them done quickly so that they can do something else.	☐	☐

Student Questionnaire II Date ____/ /____ Name _____

Teacher _____ Section _____

Sample Question:

I like:	Very True	Sort of True	Not Very True	Not at all True
a. vanilla ice cream	4	3	2	1
b. chocolate ice cream	4	3	2	1
c. strawberry ice cream	4	3	2	1
d. I don't like ice cream	4	3	2	1

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	1. If I don't understand something on a social studies assignment, I:	Very True	Sort of True	Not Very True	Not at all True
18.	a. ask the teacher to explain	4	3	2	1
19.	b. ask a friend or relative to explain	4	3	2	1
20.	c. keep working and try to figure it out	4	3	2	1
21.	d. take a guess	4	3	2	1
22.	e. give up and skip it	4	3	2	1
23.	f. copy the answer from someone else	4	3	2	1
24.	g. save it for homework	4	3	2	1

			Very True	Sort of True	Not Very True	Not at all True
	2.	My social studies teacher:				
25.		a. gives me enough time to finish my assignments	4	3	2	1
26.		b. lets me choose which assignments I want to do	4	3	2	1
27.		c. enjoys teaching social studies	4	3	2	1
28.		d. gives examples or personal experiences that make the lesson more interesting	4	3	2	1
29.		e. tells us why it's important to know the things we are learning	4	3	2	1
30.		f. makes the content so interesting that I want to learn more about it	4	3	2	1
31.		g. asks us what we think about the topic	4	3	2	1
32.	3.	What I am learning in social studies is relevant to my life outside of school.	4	3	2	1
33.	4.	I try to do my best work on social studies assignments.	4	3	2	1
34.	5.	I feel that I can meet the requirements of my social studies class well enough to earn an acceptable grade.	4	3	2	1
35.	6.	I enjoy social studies class.	4	3	2	1
36.	7.	What we are learning in social studies class helps me to understand news of current events and the world around us.	4	3	2	1
37.	8.	I find social studies challenging (not too easy or too hard).	4	3	2	1

			Very True	Sort of True	Not Very True	Not at all True
38.	9.	I usually put off doing my social studies assignment until the last minute.	4	3	2	1
39.	10.	I usually preview a social studies assignment to make sure that I understand what to do before starting it.	4	3	2	1
40.	11.	It's hard for me to take social studies work seriously becuase I don't find it very meaningful or worthwhile	4	3	2	1
41.	12.	When using resource books or the encyclopedia for an assignment, I often read articles on something other than what I am looking up.	4	3	2	1
42.	13.	I don't like it when the social studies teacher takes up time talking about things that aren't going to be on the test.	4	3	2	1
43.	14.	I try to make sure that my social studies assignments are turned in complete and on time.	4	3	2	1
44.	15.	Because of what I am learning in social studies class, I will be a better informed citizen.	4	3	2	1

Student Questionnaire III Date ___/___/_____ Name _____

Teacher _____ Section _____

45. 1. Rank order your school subjects (language arts, math, science, social studies) according to their <u>importance</u> (regardless of how much you like them). How important is what you are learning in these classes?

A.	Most important	A. _____
B.	Next most important	B. _____
C.	Next most important	C. _____
D.	Least important	D. _____

46. 2. Rank order your school subjects (language arts, math, science, social studies) <u>according to how much you like them</u> (regardless of how important you think they are).

A.	Most favorite class	A. _____
B.	Like next best	B. _____
C.	Like next best	C. _____
D.	Least favorite class	D. _____